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P R O D U C T I N F O R M A T I O N







## RELEASE MATERIAL

ALL-NEW 1995 EAGLE TALON GIVES DRIVING ENTHUSIASTS WHAT THEY DEMAND: A BALANCE OF POWER, CONTROL AND STYLE

1995 TALON RETAINS PREMIUM TURBO PERFORMANCE SUPPORTED BY POWERFUL NEW 2.0-LITER CHRYSLER ENGINE

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Note: The information shown here is preliminary and correct at time of release, but subject to change.



RELEASE MATERIAL

ALL NEW 1997 CADILLAC WILD CAT DRIVING ENTHUSIAST WITH THE  
DESIGN OF A BULL DOG FOR POWER, COMFORT AND STYLE  
1997 CADILLAC WILD CAT DRIVING ENTHUSIAST SUPPORTED BY  
NORTH AMERICAN 1.8 LITER CHRYSLER ENGINE

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1997 CADILLAC WILD CAT DRIVING ENTHUSIAST

## ALL-NEW 1995 EAGLE TALON GIVES DRIVING ENTHUSIASTS WHAT THEY DEMAND: A BALANCE OF POWER, CONTROL AND STYLE

Automobile enthusiasts have long known that for pure driving fun, few cars can match the overall combination of performance, handling and control of the Eagle Talon. The all-new 1995 Talon promises increased enjoyment, as it does everything better than the previous generation model.

"We didn't want to re-invent the Talon," explains Joe Caddell, General Product Manager for Chrysler's Small Car Platform Team. "Our original Talon concept has delighted our customers in terms of performance, style and value. We looked at ways to improve all those things that Talon already did so well. If the original Talon put smiles on the faces of driving enthusiasts, the all-new Talon will have them grinning from ear to ear!"

The all-new Talon is intended to personify and enhance the driver's own personality and passion for fun and equally symbolizes the image of the Eagle brand as well.

The new Talon's body is 50 percent stiffer than its predecessor, with torsional rigidity improved by 60 percent. This increased rigidity, along with a longer wheelbase and wider track allows Talon to achieve new levels of handling and responsiveness. Coupled with significantly more horsepower and a refined suspension, the 1995 Eagle Talon represents unprecedented performance in its price class.

The Talon is available in three performance levels — ESi, TSi and the top-of-the-line TSi AWD (all-wheel drive).

The exhilarating power of the TSi and TSi AWD continues as the Talon signature. An enhanced 210 horsepower (205 bhp with automatic transmission) — up from 195 horsepower previously — 2.0 liter, 16-valve, DOHC turbocharged four cylinder engine powers both TSi models. The engine is mated to a 5-speed manual transaxle or an available 4-speed automatic.

Equally impressive is an all-new 2.0 liter, 16-valve, DOHC Chrysler-designed, engineered and built powerplant that will supply 140 horsepower to the 1995 Talon ESi model. A Chrysler-built 5-speed manual transaxle and optional 4-speed automatic will be paired with this engine.

All Talon models will be equipped with new double wishbone, fully independent front and rear suspensions. TSi and TSi AWD models include a specially-tuned enthusiast suspension package. Four-wheel disc brakes are standard and anti-lock brakes are optional across the line.

Standard driver- and passenger-side airbags are included in a totally redesigned interior anchored by a new instrument panel that flows uninterrupted into the doors. Attention was given to design a more ergonomic driving position.

Full instrumentation includes tachometer and temperature gauges, while TSi and TSi AWD models also feature oil and turbo boost gauges.

(more)

# THE NEW TESTAMENT CHURCHES: THEIR ORIGIN AND DEVELOPMENT

The New Testament churches were born in the first century AD, and their development is a story of growth and change. The early churches were small, local groups of believers, often meeting in homes. They were led by apostles and elders, and their members were committed to a life of faith and obedience. As the churches grew, they began to develop more formal structures and doctrines. The Council of Nicea in 325 AD was a key moment in this process, as it established the Nicene Creed, which defined the core beliefs of the Christian faith. The development of the New Testament churches was a gradual process, shaped by the needs and challenges of the time.

The early churches were characterized by a strong sense of community and shared resources. Members were expected to support one another in both spiritual and material ways. This sense of unity was essential for the survival of these small, often persecuted groups. As the churches grew, they began to develop more formal structures and doctrines. The Council of Nicea in 325 AD was a key moment in this process, as it established the Nicene Creed, which defined the core beliefs of the Christian faith. The development of the New Testament churches was a gradual process, shaped by the needs and challenges of the time.

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All models feature the Talon signature black roof and black rear spoiler, as well as intermittent windshield wipers, rear wiper/washer and bodyside moldings. In addition, Talon TSi standard equipment includes integral fog lamps, bodyside cladding, body-color heated exterior power mirrors, body-color door handles, painted 16-inch aluminum wheels and dual exhaust.

TSi standard interior features include adjustable headrests, cassette radio with six speakers, leather steering wheel and manual transmission shift knob, driver's seat power/memory height and recline adjuster, plus a passenger seat power/memory system for fore and aft adjustments.

Reaching Eagle showrooms by early summer, the all-new 1995 Talon promises to continue the sporting tradition established by the first generation: a balance of power, control and style.

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## 1995 TALON RETAINS PREMIUM TURBO PERFORMANCE SUPPORTED BY POWERFUL NEW 2.0-LITER CHRYSLER ENGINE

When it comes to the sophisticated performance profile of the all-new 1995 Eagle Talon TSi, turbocharged power will continue as the pre-eminent source of excitement for driving enthusiasts.

Equally impressive is an all-new powertrain designed, engineered and built by Chrysler Corporation which will be introduced in the 1995 Talon ESi in a move designed to provide substantially more muscle to please every Talon driver.

An enhanced version of the car's 2.0-liter, turbocharged, double overhead cam (DOHC), 16-valve, fuel-injected 4-cylinder engine — a primary source of driving pleasure in the original Talon — is expected to easily transfer that same allure to the all-new version of the TSi international sports coupe. Greater horsepower over the previous generation Talon will ensure increased enthusiast interest.

This 2.0-liter turbo, built by Mitsubishi Motors Corp., will be standard on the 1995 Talon TSi and TSi AWD models. A standard 5-speed manual transmission or an optional 4-speed automatic will transfer power on both TSi models.

For 1995, the 2.0-liter turbo will offer a peak 210 horsepower at 6,000 rpm and 214 foot pounds of torque at 3,000 rpm, compared to 195 horsepower and 205 foot pounds of torque on earlier versions of this engine.

Chrysler's all-new, naturally-aspirated, 2.0-liter, 16-valve, DOHC, fuel-injected 4-cylinder engine will power the 1995 Talon ESi model.

Talon ESi, as well as its Mitsubishi Eclipse counterpart, will receive the new Chrysler DOHC 2.0-liter engine in a three-part agreement between Chrysler, Mitsubishi and Diamond-Star Motors, a Mitsubishi manufacturing subsidiary based in Normal, Illinois, where both Talon and Eclipse will be built. This represents the first time a domestic automaker's complete powertrain will be used in volume by a Japanese manufacturer. Chrysler also will supply 5-speed manual and 4-speed automatic transaxles for both the Talon ESi and the equivalent Eclipse model.

"For the first time, Chrysler will be providing drivetrains and electronics to a Japanese manufacturer," states Dave VanRaaphorst, Project Executive, Diamond-Star and Mitsubishi Programs, Small Car Platform Team. "In the past, through our relationship with Mitsubishi, we have utilized Mitsubishi engines in certain models. Now we're happy to be able to provide Chrysler powertrain expertise to the new Talon series. I think it speaks volumes that Mitsubishi now considers Chrysler-engineered powertrains and electronics — in terms of power, reliability and efficiency — for use in their own vehicles, namely the new Eclipse. I can tell you that the engineers at Chrysler are extremely proud of this 'reverse flow' of technology with Japan."

In the Talon ESi, the new Chrysler engine will produce 140 horsepower at 6,000 rpm and 130 foot pounds of torque at 4,800 rpm.

(more)



Fuel economy of the efficient Chrysler 2.0-liter engine is as impressive as its performance. With the 5-speed transmission, it will deliver an estimated 22 mpg in city driving and 32 mpg on the highway. Talon TSi's 2.0-liter turbo will be rated at an estimated 23 mpg city and 31 mpg highway with the 5-speed transmission.

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PUBLIC RELATIONS CONTACTS

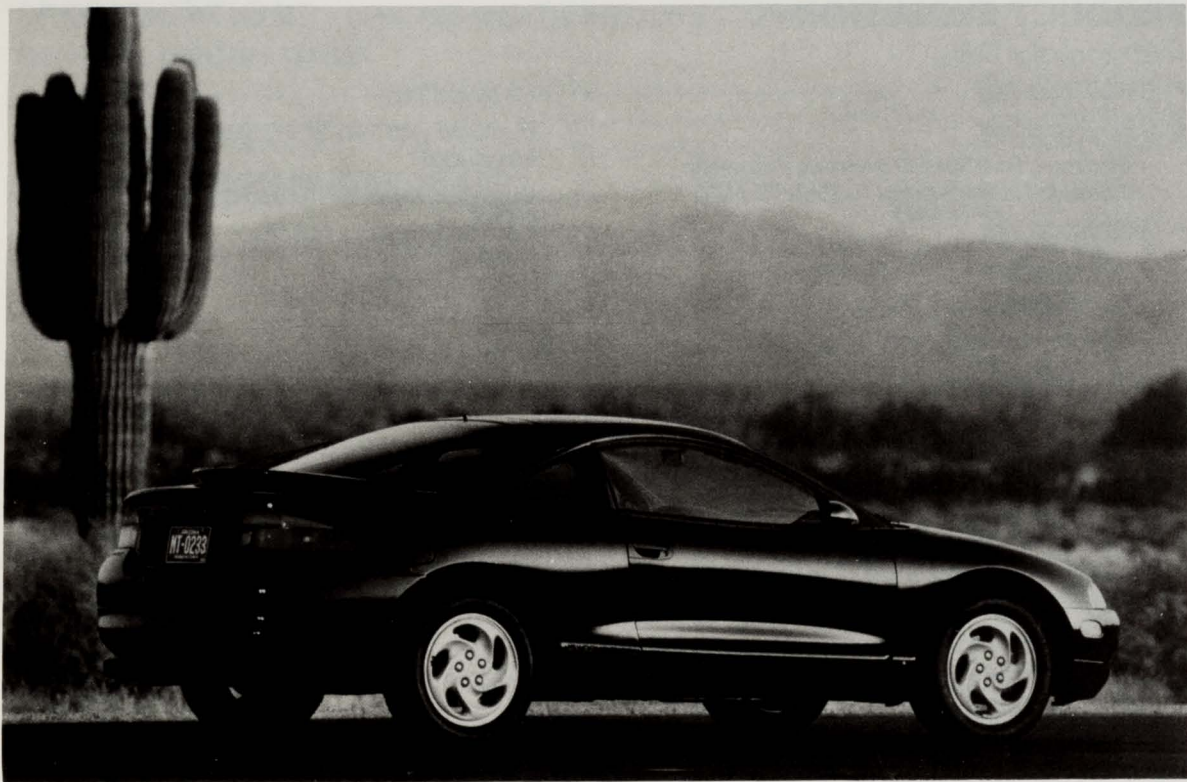
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[Organization]



#### MARKET POSITION:

The all-new 1995 Eagle Talon is a unique sports coupe that personifies our prospect's passion for fun with its aggressive styling, superb performance and latest technology for active, independent-minded people.

#### MARKET ADVANTAGES:

The all-new Talon was designed to maximize driving fun for driving enthusiasts with new multi-link fully independent front and rear suspensions, speed sensitive steering, standard four-wheel disc brakes and available anti-lock brakes. Body structure is fifty percent stiffer than the previous model, with torsional rigidity improved by sixty percent. Standard driver and passenger air bags, and a driver-oriented cockpit are included in a totally redesigned interior. Exterior styling is enhanced with a standard integrated black rear spoiler and signature black roof. ESi models are powered by an all-new Chrysler 2.0 liter, 16 valve, DOHC engine with 140 horsepower. Premium TSi and TSi AWD (all-wheel drive) models are equipped with a 2.0 liter turbocharged, intercooled engine upgraded to 210 horsepower, enthusiast suspension package and 16-inch aluminum wheels.

## PRODUCT EVOLUTION

### Initial Introduction Date

- 1990 Model Year
- 1991 Model Year
  - Electronic Four-Speed Overdrive Automatic Transaxle Option Added To TSi & TSi AWD
- 1992 Model Year
  - Anti-Lock Brake Option Added
  - New Front And Rear Fascias
  - New Aerodynamic Front Lights
  - New Taillights
- 1993 Model Year
  - DL model with 1.8 L SOHC SMPI Engine Introduced
  - Upgraded Brakes For Turbocharged Models
  - Gas-Pressure Shock Absorbers For Turbocharged Models

## FEATURE HIGHLIGHTS\*

TECH INFO.  
SECTION PG.

• All-New Wide-Stance, Organic Design Body .....	B1
• Low Aerodynamic Drag .....	B1
• New, More Powerful 2.0 Liter DOHC 16 Valve SMPI Engine For ESi .....	P1
• More Powerful Turbocharged 2.0 Liter DOHC 16 Valve SMPI Engine .....	P6
• New 5-Speed Manual Transaxle for ESi .....	P12
• New Electronic 4-Speed Automatic Transaxle for ESi .....	P14
• Refined Electronic 4-Speed Automatic Transaxle for TSi & TSi AWD .....	P16
• Multi-Link Front & Rear Suspension Systems .....	C3
• Passenger Air Bag Supplemental Restraint System .....	C10
• Vertically Adjustable Shoulder Belt Anchors .....	C10
• Remote Keyless Entry and Theft Alarm Systems (Late Availability) .....	C12
• Upgraded Central Door Locks .....	C11
• Tinted Glass Tilt and Exterior Slide Power Sunroof .....	B4
• OBD II Diagnostic Capabilities on Most Models .....	C14
• Central Data Link Connector .....	C16
• Headlights w/Clear Lenses and Multi-Faceted Reflectors .....	B5
• Hardtop-Style Door Windows .....	B6
• All New Interior .....	B26
• Ergonomically Designed Instrument Panel and Controls .....	B9
• HVAC System w/Door-Mounted Vents and Cool Air Bypass System .....	B10
• Variable-Displacement Air Conditioning Compressor (TSi & TSi AWD) .....	B10
• Graphic Equalizer Radio w/Eight Infinity® Speakers (TSi & TSi AWD) .....	B18
• Upgraded 4-Wheel Disc Brake Systems .....	C1
• Faster Power Steering Ratio .....	C3
• Higher-Capacity Muffler System .....	C6
• New exterior colors: Medium gray metallic, Wildberry pearl-coat, Tropical Lime pearl-coat, blue pearl-coat.	
• Interior colors: two-tone gray, two-tone brownstone	

\* A more detailed, technical explanation of major "Feature Highlights" may be found under Technical Information.

# SPECIFICATIONS – IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.

## GENERAL INFORMATION

Body Style.....Two-Door Hatchback  
 Assembly Plant.....Normal, Illinois  
 EPA Vehicle Class.....Subcompact Car

## MODEL/POWERTRAIN AVAILABILITY

Model	ENGINE		TRANSAXLE	
	2.0L SMPI 16V I-4	2.0L SMPI 16V I-4 Turbo	Manual 5-Speed	Automatic 4-Speed
Talon ESi	•		•	Opt.
Talon TSi		•	•	Opt.
Talon TSi AWD		•	•	Opt.

• = Standard; Opt. = Optional

## ENGINE.....2.0 LITER DOHC 16 VALVE SMPI

Type & Description.....Four cylinder, in line, liquid-cooled  
 Displacement.....121.8 in<sup>3</sup> (1996 cm<sup>3</sup>)  
 Bore x Stroke.....3.44 x 3.27 in. (87.5 x 83.0 mm)  
 Valve System.....DOHC, 16 valves, stamped steel rocker arms w/roller followers, hydraulic lash adjusters  
 Fuel Injection.....Sequential multiport, electronic  
 Construction.....Cast Iron block, cast iron bedplate, aluminum alloy head  
 Compression Ratio.....9.6:1  
 Power (SAE net).....140 bhp (104 kW) @ 6000 rpm  
 Torque (SAE net).....131 lb-ft (178 N•m) @ 4800 rpm  
 BHP/Liter.....70.1  
 Max. Engine Speed.....7000 rpm manual transaxle, 6400 automatic transaxle, electronically limited  
 Fuel Requirement.....Unleaded regular, 87 octane R+M/2  
 Oil Capacity.....4 qt (3.8 L) plus filter  
 Coolant Capacity.....TBD  
 Emission Controls.....3-way catalyst, heated O<sub>2</sub> sensor, aspirator (manual trans. only), engine modifications, EGR  
 Weight/Power w/Std. Equipment.....20.2 lb/bhp (manual trans.)  
 Max. Gross Trailer Weight (lbs) - Std.....Not recommended  
 EPA Fuel Economy (MPG City/Hwy).....22/32 manual; 22/31 automatic  
 Alternator.....90 A  
 Battery.....430 A - MTX; 525 A - ATX, Group 86, maintenance-free

## ENGINE.....TURBOCHARGED 2.0 LITER DOHC 16 VALVE SMPI

Type & Description.....Four cylinder, in line, liquid-cooled  
 Displacement.....122 in<sup>3</sup> (1997 cm<sup>3</sup>)  
 Bore x Stroke.....3.35 x 3.46 (85.0 x 88.0)  
 Valve System.....DOHC, 16 valves, rocker arms w/roller followers, hydraulic lash adjusters  
 Fuel Injection.....Sequential multiport, electronic  
 Construction.....Cast Iron block, aluminum alloy head, counter-rotating balance shafts, beam bearing cap  
 Compression Ratio.....8.5:1  
 Power (SAE net).....210 bhp (157 kW), man. trans.; 205 bhp (153 kW), auto. trans. @ 6000 rpm  
 Torque (SAE net).....214 lb-ft (290 N•m), man. trans.; 220 lb-ft (298 N•m), auto. trans. @ 3000 rpm  
 BHP/Liter.....105.2, man. trans.; 102.7, auto. trans.  
 Max. Engine Speed.....NA  
 Fuel Requirement.....Unleaded premium, 91 octane R+M/2  
 Oil Capacity.....4.2 qt (4.0 L)  
 Coolant Capacity.....TBD  
 Emission Controls.....3-way catalyst, heated O<sub>2</sub> sensor, engine modifications, EGR  
 Weight/Power w/Std. Equipment.....14.1 lb/bhp, TSi w/manual trans.; 15.4 lb/bhp, TSi AWD w/manual trans.  
 Max. Gross Trailer Weight (lbs) - Std.....Not recommended  
 EPA Fuel Economy (MPG City/Hwy).....22/31, TSi w/ manual trans.; 21/27 TSi AWD w/manual trans.; TBD auto. trans.  
 Alternator.....75A  
 Battery.....525 A, Group 86, maintenance-free

**SPECIFICATIONS (CONTINUED) – IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.****TRANSMISSION .....MANUAL, 5-SPEED OVERDRIVE (ESi ONLY)**

Description.....	5-speed, overdrive, synchronized in all forward ratios, reverse brake, cable-operated 3-plane shifter
Gear .....	Ratio
1st .....	3.54
2nd .....	2.13
3rd .....	1.36
4th .....	1.03
5th .....	0.81
Effective Final Drive .....	3.94
Overall Top Gear .....	3.20

**TRANSMISSION .....MANUAL, 5-SPEED OVERDRIVE (TSi & TSi AWD)**

Description.....	Synchronized in all forward gears, 5-R lock-out, cable operated 3-plane shifter
Gear .....	Ratio
1st .....	3.09 (a); 3.08 (b)
2nd .....	1.83 (a); 1.68 (b)
3rd .....	1.22 (a); 1.12 (b)
4th .....	0.89 (a); 0.83 (b)
5th .....	0.74 (a); 0.67 (b)
Effective Final Drive .....	4.15 (a); 4.93 (b)
Overall Top Gear .....	3.08 (a); 3.29 (b)

(a) TSi (b) TSi AWD

**TRANSMISSION .....AUTOMATIC, 4-SPEED OVERDRIVE (ESi ONLY)**

Description.....	Electronic control, overdrive lockout, electronically modulated converter clutch
Gear .....	Ratio
1st .....	2.84
2nd .....	1.57
3rd .....	1.00
4th .....	0.69
Effective Final Drive .....	3.91
Overall Top Gear .....	2.69

**TRANSMISSION .....AUTOMATIC, 4-SPEED OVERDRIVE (TSi AND TSi AWD)**

Description.....	Electronic control, overdrive lockout, electronically modulated converter clutch
Gear .....	Ratio
1st .....	2.55
2nd .....	1.49
3rd .....	1.00
4th .....	0.68
Effective Final Drive .....	4.38 (a); 4.42 (b)
Overall Top Gear .....	3.00 (a); 3.03 (b)

(a) TSi (b) TSi AWD

**ALL WHEEL DRIVE**

Center Differential.....	Viscous Coupling
Torque Split, F/R .....	50/50
Rear Differential.....	Open, standard; Viscous limited slip, optional

# SPECIFICATIONS (CONTINUED) – IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.

## DIMENSIONS/CAPACITIES.....ESi .....TSi & TSi AWD .....

Wheelbase .....	98.8 (2510)	98.8 (2510)
Track - Front.....	59.7 (1515)	59.7 (1515)
- Rear .....	59.4 (1510)	59.4 (1510)
Overall Length.....	172.2 (4375)	172.2 (4375)
Overall Width.....	68.3 (1735)	68.7 (1745) (a); 68.7 (1745) (b)
Overall Height (1) .....	51.0 (1295)	51.6 (1310)
Ground Clearance (1) .....	5.71 (145)	5.71 (145)
EPA Cargo Volume.....	16.6 ft <sup>3</sup> (470 L)	16.6 ft <sup>3</sup> (470 L) (a); 13.5 ft <sup>3</sup> 382 L (b)
Curb weight - est .....	2756 lb (1250 kg)	2866 lb (1300 kg) (a); 3119 lb (1415 kg) (b)
Weight Distribution, F/R.....	TBD	TBD
Frontal Area.....	20.4 ft <sup>2</sup> (1.9 m <sup>2</sup> )	20.4 ft <sup>2</sup> (1.9 m <sup>2</sup> )
Drag Coefficient.....	0.29	0.29
Fuel Tank Capacity.....	15.8 gal (60 L)	15.8 gal (60 L)

(1). At curb weight (a) TSi (b) TSi AWD

## ACCOMMODATIONS .....ESi .....TSi & TSi AWD .....

Seating Capacity, F/R.....	2/2	
Front - Head Room.....	37.9 (962)	
- Leg Room - max. ....	43.3 (1099)	
- Shoulder Room.....	53.1 (1350)	
- Hip Room.....	55.1 (1400)	
Seat Travel.....	9.45 (240), man; 9.06 (230), power	
Recliner Range .....	48°	
Rear - Head Room.....	34.1 (867)	
- Leg Room - min.....	28.4 (721)	
- Knee Room.....	TBD	
- Shoulder Room.....	51.2 (1300)	
- Hip Room.....	47.2 (1200)	
EPA Volume Index .....	95.7 ft <sup>3</sup>	95.7 ft <sup>3</sup> (a); 92.6 ft <sup>3</sup> , (b)
Seat Adjustments		
- Driver .....	Manual 6-way cushion, recliner, head restraint - std; Power 6-way cushion, manual recliner, head restraint - opt.	Manual 6-way cushion, recliner, back wings lumbar, head restraint - std; Power 6-way cushion, manual recliner, back wings, lumbar, head restraint - opt.
- Passenger .....	Manual track w/walk-in feature, recliner, head restraint - std.	Manual track w/walk-in feature, ..... recliner, head restraint - std.
Restraints		
- Front .....	Driver: Airbag, knee bolster, 3-point active belt w/adjustable height & belt. traveling inboard buckle; Passenger: Airbag, knee bolster, 3-point active w/adjustable height & traveling inboard buckle	
- Rear.....	3-point active belts	

(a) TSi (b) TSi AWD

**SPECIFICATIONS (CONTINUED) – IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED.****INSTRUMENTATION**

Instruments.....	170 mph (270 km/hr) analog speedometer, odometer, trip odometer, ..... 9000 rpm (8000 w/auto. trans.) tachometer, fuel, coolant temperature, std. all; turbo boost & oil pressure, std. TSi & TSi AWD
Warning Lamps .....	Battery, oil pressure, driver's seat belt, door/liftgate ajar, brake fluid, high beam ..... headlights, low fuel, coolant level, low washer fluid, anti-lock brakes, turn signals, brake, air bag and check engine

**BODY/CHASSIS ..... ESi & TSi ..... TSi AWD .....**

Layout.....	Transverse front engine, ..... front wheel drive	Transverse front engine, ..... all-wheel drive
Construction.....	Steel Unibody w/isolated front & rear crossmembers .....	
Suspension - Front .....	Multiple links, coil springs, ..... direct acting shock absorbers, link-type stabilizer bar	Multiple links, coil springs, ..... direct acting shock absorbers, link-type stabilizer bar
Suspension - Rear .....	Multiple links, coil springs, ..... direct acting shock absorbers	Multiple links, coil springs, ..... direct acting shock absorbers, link-type stabilizer bar

**STEERING**

Type.....	Engine speed-variable, power-assisted rack & pinion .....
Overall Ratio .....	14.6:1 .....
Turning Diameter - (curb-to-curb).....	38.1 ft (11.6 m) .....
Steering Turns - (lock-to-lock) .....	2.4 .....

**BRAKES****STANDARD****Size & Type**

- Front.....	8.0 (204) eff. dia. x 0.94 (24) ..... vented disc, 2.38 (60) dia. sliding caliper	9.0 (228) eff. dia. x 0.94 (24) ..... vented disc, 1.69 (43) dia. dual-piston sliding caliper
- Rear .....	8.7 (222) eff. dia. x 0.4 (10) ..... solid disc, 1.38 (35) dia. sliding caliper	9.3 (237) eff. dia. x 0.7 (18) ..... vented disc, 1.5 (38) dia. sliding caliper
Swept Area - Front.....	TBD .....	TBD .....
- Rear .....	TBD .....	TBD .....
Power Assist Type.....	Single-diaphragm vacuum .....	Tandem diaphragm vacuum .....

**Optional**

Size & Type - Front.....	Same as std. w/ABS .....	Same as std. w/ABS.....
- Rear .....	Same as std. w/ABS .....	Same as std. w/ABS.....
Swept Area - Front.....	Same as std. ....	Same as std. ....
- Rear .....	Same as std. ....	Same as std. ....
Power Assist Type .....	Tandem diaphragm vacuum .....	Same as std. ....

**WHEELS..... ESi ..... TSi & TSi AWD .....**

Type & Material .....	Steel disc .....	Cast aluminum .....
Size .....	14 x 5.5 .....	16 x 6 .....

**TIRES**

Size & Type .....	P195/70HR14 A/S BSW .....	P205/55VR16 A/SP BSW P215/55VR16 A/SP BSW AWD w/man. trans.
Mfr. & Model .....	TBD .....	Goodyear RSA.....

## FEATURES AVAILABILITY

	ESi	TSi	TSi AWD	TECH INFO. SECTION PG.
AIR BAGS - Driver & Passenger .....	•	•	•	C10
AIR CONDITIONING w/Economy Mode .....	Opt.	Opt.	Opt.	B10
BRAKES - Four-Wheel Disc .....	•	•	•	C1
- Anti-Lock .....	Opt.	Opt.	Opt.	C1
BUMPERS - 5 MPH Impact Protection .....	•	•	•	B2
CIGAR LIGHTER - Console-Mounted .....	•	•	•	B26
CLOCK - Digital (Included w/Radio) .....	•	•	•	B14
DEFROSTER - Rear Window, Electric .....	Opt.	•	•	B13
DIFFERENTIAL - Rear, Limited Slip .....			Opt.	P17
DOOR CHECKS - Two Stage .....	•	•	•	B6
EXHAUST SYSTEM - Stainless Steel: Single Outlet .....	•			C6
- Dual Outlet w/ Chrome Tips .....		•	•	C6
EXTERIOR APPEARANCE - Blackout Treatment: Roof, Pillars, Mirrors, Window Opening Moldings .....	•	•	•	B1
- Door Handles: Black .....	•			B6
- Body Color .....		•	•	B6
- Fascias: Front & Rear, Body Color .....	•	•	•	B2
- Moldings: Body Side, Body Color .....	•			B2
- Side Air Dams: Body Color .....		•	•	B2
- Spoiler: Liftgate-Mounted w/Integral Center Stop Light, Black .....	•	•	•	B1
FOG LIGHTS - Front .....		•	•	B5
GLASS - Tinted All Windows w/ Windshield Sunshade .....	•	•	•	B3
INTERIOR TRIM - Assist Handle: Winshield Pillar, Right .....	•	•	•	B26
- Cargo Area Trim: Molded, Color-Keyed .....	•	•	•	B26
- Cargo Net .....	Opt.	•	•	B26
- Carpet: Floor, Cut Pile, Color-Keyed .....	•	•	•	B26
- Cargo Area, Needle Punch .....	•	•	•	B26
- Coat Hooks (2) .....	•	•	•	B26
- Console: Floor w/Armrest, Cupholders (2), & Covered Storage .....	•	•	•	B26
- Door Trim Panels: Molded, Color-Keyed .....	•			B26
- Padded w/Vinyl Insert & Map Pockets, Color-Keyed .....	Opt.			B26
- Padded w/Cloth Insert & Map Pockets, Color-Keyed .....		•	•	B26
- Floor Mats: Front, Carpeted, Color-Keyed .....	Opt.	Opt.	Opt.	B26
- Foot Rest: Driver's, Left .....	•	•	•	B26
- Headliner: Knit, Color-Keyed .....	•	•	•	B26
- Shelf Panel: Removable, Color-Keyed .....	Opt.	•	•	B26
- Shift Knob: Molded .....	•			P13
- Leather-Wrapped (Manual Transaxle Only) .....		•	•	P13
- Steering Wheel: Leather-Wrapped .....		•	•	B9
- Sun Visors: Cloth w/Covered Mirrors .....	•			B26
- Cloth w/Illuminated Mirrors .....		•	•	B26
LAMPS - Ash Tray, Cargo Area, Cigar Lighter, Glove Box, Ignition Key w/ Time Delay, Dual Map/Dome w/Time Delay .....	•	•	•	B27
- Footwell w/Time Delay .....		•	•	B27
LOCK - Glove Compartment .....	•	•	•	B9
MIRRORS - Exterior: Manual Remote, Dual .....	•			B7
- Power, Dual .....	Opt.	•	•	B7
POWER - Windows: w/Driver's One-Touch Down .....	Opt.	Opt.	•	B14
- Central Door Locks .....	Opt.	Opt.	•	C11

Legend: • = Standard; Opt. = Available at extra cost, alone and/or in a package

## FEATURES AVAILABILITY

	ESi	TSi	TSi AWD	TECH INFO. SECTION PG.
RADIO - AM/FM Stereo ETR, 4 Speakers.....	•			B14
- AM/FM Stereo ETR, Cassette, 6 Speakers .....	Opt.	•	•	B15
- AM/FM Stereo ETR, Cassette, Graphic Equalizer, Seek & Scan, 8 Infinity® Speakers.....		Opt.	Opt.	B18
- AM/FM Stereo ETR w/Cassette, Compact Disc & Six Speakers .....	Opt.	Opt.	Opt.	B20
REMOTE KEYLESS ENTRY/SECURITY ALARM SYSTEMS.....	Opt.	Opt.	Opt.	C12
REMOTE RELEASE - Fuel Filler Door & Liftgate .....	•	•	•	B14
SEAT FABRIC - "Forest" Cloth .....	•			B24
- "Pulsar" & "Serein" Cloth.....		•	•	B24
- Leather & Vinyl w/Vinyl Door Inserts.....		Opt.	Opt.	B24
SEATS - Driver: Low-Back Bucket w/Memory Recliner, 6-Way Manual Cushion & Adjustable Head Restraint .....	•	•	•	B24
- Lumbar & Back Wing Adjustments.....		•	•	B24
- 6 Way Power Cushion .....		Opt.	Opt.	B24
- Passenger: Low Back Bucket w/Recliner, "Walk in" Track, Adjustable Head Restraint.....	•	•	•	B24
- Rear: 2 Passenger Bench w/Folding Back.....	•			B25
- 2 Passenger Bench w/Split Folding Back.....		•	•	B25
SPEED CONTROL, Electronic .....	Opt.	Opt.	•	B13
STEERING COLUMN - Tilt .....	•	•	•	B9
SUNROOF - Power Tilt & Slide .....	Opt.	Opt.	Opt.	B4
TIRE & WHEEL - Spare, Mini.....	•	•	•	C6
WARNING CHIME - Key-In-Ignition, Headlights On, Fasten Seat Belts.....	•	•	•	B7
WHEEL COVERS - Full (4) .....	•			C6
WHEELS - Cast Aluminum, white or silver (4).....		•	•	C6
WIPERS & WASHERS - Windshield: Two-Speed w/Variable Intermittent .....	•	•	•	B7
- Rear Window: Single Speed w/Intermittent.....	•	•	•	B7

Legend: • = Standard; Opt. = Available at extra cost, alone and/or in a package

NOTE: Option Availability varies by equipment packages.

The information shown is preliminary and based on data available at the time of publication.

P R O D U C T P H O T O G R A P H Y

PRODUCT PHOTOGRAPHY & TECHNICAL ART

& T E C H N I C A L A R T





1995 EAGLE TALON TSi

E-501

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1995 EAGLE  
TALON TSI

E-501

1995 EAGLE  
TALON TSI

E-506

1995 EAGLE  
TALON RACE CAR

E-504

1995 EAGLE  
TALON TSI

E-502

1995 EAGLE  
TALON TSI AND

TALON RACE CAR  
E-507

1995 EAGLE  
TALON ESI

E-505

1995 EAGLE  
TALON ESI

E-503

1995 EAGLE  
TALON TSI

E-508

1995 EAGLE  
2.0L DOHC

E-509







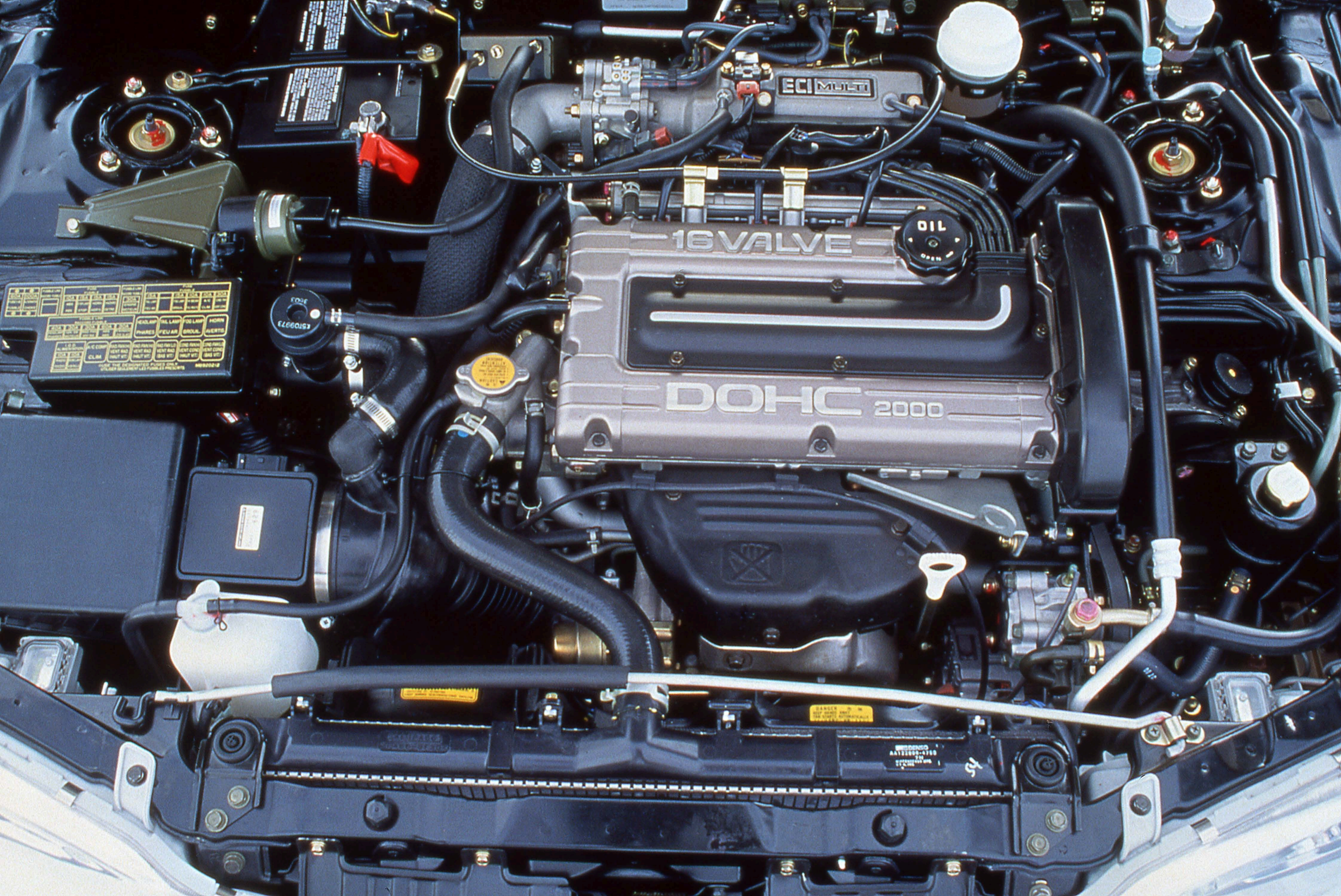












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T E C H N I C A L I N F O R M A T I O N



**POWERTRAIN**

ENGINE SYSTEMS

DRIVETRAIN

**BODY**

BODY EXTERIOR

BODY SYSTEMS

BODY INTERIOR

**CHASSIS**

CHASSIS

NOISE, VIBRATION AND HARSHNESS CONTROL

SAFETY AND SECURITY

ENVIRONMENTAL

SERVICEABILITY &amp; MAINTENANCE

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Note: The information shown here is preliminary and correct at time of release, but subject to change.



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## ENGINE SYSTEMS

### DOUBLE OVERHEAD CAMSHAFT 2.0 LITER FOUR-CYLINDER ENGINE

#### GENERAL INFORMATION

Talon ESi has an all-new Chrysler-designed double overhead camshaft four-cylinder engine that is compact and light weight. Displacement is 1996 cm<sup>3</sup> (121.8 in<sup>3</sup>). The engine is slightly over square with a bore of 87.5 mm (3.44 in.) and a stroke of 83 mm (3.26 in.). Compression ratio is 9.6:1. The engine is designed to run on regular-grade unleaded gasoline.

#### ENGINE PERFORMANCE

The engine has a very high specific output of 70 bhp/liter for brisk performance. It produces 5 more horsepower and 5 more foot-pounds of torque than the previous 2.0 liter naturally aspirated engine. Its ratings are:

<u>Power @ rpm</u>	<u>Torque @ rpm</u>
140 bhp @ 6000	131 lb-ft @ 4800 rpm
104 kW @ 6000	178 N•m @ 4800 rpm

#### CYLINDER HEAD

A low profile, cast aluminum cross-flow cylinder head has pent-roof combustion chambers housing four valves per cylinder. Dual camshafts run in six bearings with removable caps that are machined in head base material. Powdered metal valve seat inserts and valve guides are pressed into the head. Spark plugs thread into the center of the combustion chamber through wells cast into the head.

To provide turbulence in the cylinders that contributes to the rapid combustion necessary for low emissions and efficient operation on regular-grade gasoline, the intake ports cause the incoming air to "tumble" from top to bottom of the cylinders. The degree of tumbling action was balanced against the conflicting need for high air flow to obtain high power output.

#### CYLINDER BLOCK AND BEDPLATE

The thin-wall cast iron block is only 212 mm (8.35 in.) high to clear Talon's low hood. The block ends at the centerline of the crankshaft. Bore spacing of 96 mm (3.78 in.) allows room for coolant to flow around all cylinders. The top deck is open to reduce weight. For light weight, cylinder walls do not allow for a larger bore.

A bedplate beneath the block supports the crankshaft and provides needed structural stiffness for durability at high rpm's and quiet operation. A perimeter wall and three transverse webs make up the bedplate. Main bearing caps are integral with the transverse webs. The bedplate attaches to the base of the block via 20 bolts—10 along the outer walls and 10 straddling the main bearings. The bedplate also provides a flat sealing surface for the oil pan.

#### INTAKE MANIFOLD

A two-piece cast aluminum intake manifold features curved 18.5 in. (470 mm) primary runners to enhance low-speed torque. The runners are curved to provide as much length as possible in the compact engine compartment of the Talon. A tapered plenum and elbow section deliver air from the throttle body to the runners. Recirculated exhaust gas (EGR) for NO<sub>x</sub> emission control enters the manifold at the base of the throttle body.

### Exhaust Manifold

A compact, light weight nodular cast iron exhaust manifold allows exhaust gas to heat the catalytic converter to operating temperature quickly for low emissions.

### Valve Train

Four valves per cylinder are actuated by dual overhead camshafts. Valve seat outer diameters are 1.36 in. (34.5 mm), intake, and 1.16 in. (29.5 mm), exhaust. All valves have 0.25 in. (6 mm) chrome plated stems. Intake valve lift is 0.31 in. (7.8 mm) and exhaust valve lift is 0.28 in. (7.0 mm). Valves have a 48° included angle; exhaust valves forward, intakes rearward. Each valve is operated by an end-pivot rocker arm. Each 0.79 in. (20 mm) roller cam follower runs on roller-bearings. Each rocker pivots on an inboard-mounted, fixed hydraulic lash adjuster. Barrel-shaped single valve springs provide control of valve actuation to 7200 rpm.

The nodular iron camshaft is hardened after machining to provide the requisite durability characteristics for roller followers. A state-of-the art cog belt drives the camshaft. The belt system is designed to last the life of the vehicle without adjustment or replacement. High belt loads associated with operating 16 valves dictated a special high temperature rubber material and unique belt construction. A spring-loaded automatic tensioner with hydraulic damping forces an idler pulley against the back of the belt, maintaining proper tension for the life of the vehicle. Low inertia powdered metal sprockets, one for each cam, are spaced away from the block to reduce belt operating temperature. A two piece molded plastic cover completely encloses the belt to prevent damage from foreign matter. It includes a removable inspection plate.

### Pistons and Rings

Pistons are cast from a eutectic aluminum alloy that contains 12% silicon for wear resistance. They have an elliptical shape to control expansion during warm up to minimize noise and avoid low temperature scuffing. The pin is offset 0.04 in. (1 mm) to reduce noise. The tops of the pistons include valve clearance notches that allow increased valve lift. Piston pins are press fitted into the rods. Ring line-up is conventional, with two compression rings and a three-piece oil ring.

### Connecting Rods

Connecting rods and rod caps are initially formed as one-piece powdered metal forgings. Molding them from powder before forging assures excellent dimensional and weight control with minimum machining. Powdered metal rods are lighter than conventional forgings, especially at the piston end, resulting in low reciprocating weight and smooth high rpm operation. Weight is lower because the rods are made without the excess material that is partially machined away as part of the normal balancing process on conventional rods. The cap is separated from the rod by a unique process. The uneven surface that results from the breaking process provides perfect rod to cap alignment at assembly. Rod cap retention screws thread directly into the connecting rod for simplicity and light weight.

### Crankshaft

The nodular cast iron crankshaft is fully counterweighted—it has counter weights on both sides of each crank pin—to balance bearing loads for smooth, quiet operation yet weighs only 15 kg (33 pounds). Counterweights opposite each crankpin allow bearing diameters to be reduced from past practice for less friction aiding fuel economy and power. Main and rod bearings are 2.05 in. (52 mm) and 1.88 in. (48 mm) in diameter, respectively—0.4 in. (10 mm) and 0.15 in.

(4 mm) smaller, respectively, than past practice. Main and rod bearing journal tolerances are reduced from past practice for quieter operation and longer life.

A conventional inertia-ring vibration damper is mounted on the nose of the crankshaft. Pulley grooves machined into the inertia ring drive the generator and accessory belts. In addition to reducing engine noise and vibration, the damper reduces load variation on the belts for longer belt life.

### **BEARINGS**

The camshaft needs no bearing inserts: it operates directly in the cylinder head. Main and rod bearing inserts are bimetal with a high load capacity.

### **LUBRICATION SYSTEM**

The powder metal gerotor oil pump mounts in an aluminum housing attached to the front of the block and is driven by the crankshaft. The system for returning oil from the head prevents aeration during high-rpm operation. Oil drains from the head along the right (rearward facing) side of the block, because the block is inclined in that direction. The crankcase is ventilated through openings left side of the head. Oil capacity is four quarts plus filter. SAE 5W-30 oil, grade SP/SG is recommended. A half-quart oil filter mounts vertically to an extension of the bedplate.

### **Oil Pan**

The oil pan is stamped from acoustically damped material—two sheets of steel sandwiching a layer of sound deadening mastic—to reduce noise transmission. The pan is basically full depth throughout its length, allowing ample clearance between crankshaft and oil to avoid aeration.

### **Cooling System**

The water pump scroll is integral with the block to reduce complexity. The pump is driven by the timing belt. The thermostat housing, cooling system filler neck, radiator hose nipple and overflow nipple are combined in a single cast aluminum part that attaches to the thermostat base on the cylinder head. The filler neck is on this housing rather than the radiator because Talon's low hood line makes this the highest point in the cooling system and therefore the appropriate place for filling or refilling the system after maintenance or repair. A pressure radiator cap attaches to the filler neck. This cap maintains constant pressure in the cooling systems when the engine is running to enhance cooling and reduce water pump cavitation. This cap is smaller than a conventional radiator cap to avoid using an incorrect cap.

A check ball in the thermostat allows air in the coolant to escape when the system is cool but seals to assure rapid engine warm-up. The vent also aids in refilling the system after maintenance or repair by preventing air entrapment. By allowing air to escape, the vent also helps prevent large variations in coolant temperature during warm-up previously caused by trapped air.

### **Cylinder Head Cover**

The cast aluminum cylinder head cover has a black enameled finish. Raised nomenclature on the cover — "DOHC 2.0 L 16 Valve" — has a natural finish.

## SEALING FEATURES

A comprehensive list of features assures a leak-free engine. These features include the following items:

- The crankshaft rear main seal is pressed into the block and bedplate assembly rather than into a bolt-on housing, eliminating a potential leakage path. The seal includes a Teflon® lip for long life.
- The oil pump cover houses the crankshaft front main seal.
- Oil pan and cylinder head cover gaskets are state-of-the-art molded silicone with steel backbones and compression limiters.
- Bed plate construction makes oil pan sealing easier by providing a flat, continuous, machined sealing surface.
- The top surface of the cylinder head is machined flat for easy sealing.
- Spark plug wells are sealed to the cylinder head covers by individual molded seals.
- A molded silicone rubber gasket that is integral with the thermostat provides a high-integrity seal between the thermostat housing and cylinder head.
- The oil pan drain plug includes a molded seal to prevent leakage.
- The camshaft sensor is sealed to the cylinder head with an O-ring.

## FUEL INJECTION SYSTEM

Sequential multi-port injection uses injectors that direct a separate spray to each intake valve to provide balanced fuel delivery to all cylinders. Sequential injection improves throttle response and overall driveability compared to single-point injection.

The fuel injection system uses speed-density control — engine speed and intake manifold pressure as primary determinants of fuel injection rate and timing. Intake manifold pressure is determined by a manifold absolute pressure (MAP) sensor. The injection system uses the same speed, timing and cylinder selection sensors as the ignition system. These direct-acting sensors provide both greater accuracy and quicker response than a conventional distributor.

The throttle body has a 2.05 in. (52 mm) bore to minimize restriction at high rpm. To enhance manual transaxle driveability, the throttle body has a contoured bore in the off-idle area that reduces the slope of the airflow vs. throttle angle curve making low-throttle "launches" easier. Also with manual transaxle, the throttle is operated by a progressive cam that provides relatively slow initial response to pedal movement. With automatic transaxle, the cam provides throttle response proportional to pedal movement.

## IGNITION SYSTEM

The ESI engine has a direct (distributorless) ignition system that provides the following benefits compared to distributor systems:

- quick starts because camshaft and crankshaft sensors give early recognition of which cylinder is to be "fired"
- simplification because the distributor and related parts are eliminated

- greater accuracy because ignition and fuel injection timing signals are taken directly from the crankshaft and camshaft
- reduced maintenance because timing adjustment is never required
- improved idle quality because timing variation is reduced
- improved engine response and idle quality because DIS sensors update data flowing to the PCM (powertrain control module) more frequently than conventional systems to accurately reflect changing speed and load conditions
- high reliability through use of proven "Hall-effect" sensors

Two sensors provide data for operation of the system: a crankshaft timing sensor and a camshaft reference sensor. The timing sensor, which is inserted through the side of the block, senses two patterns of four slots each in the #2 crankshaft counterweight, spaced 180° apart. These slots provide data for engine speed and timing calculations. Their position on the crankshaft establishes basic timing for the engine. Sensing directly from the crankshaft provides greater accuracy than prior systems that sensed from starter ring gear or torque converter drive plate. Individual slots are spaced 20° apart. Spark advance and injection timing are computed from these points. One slot, called the "signature" slot, is 60° wide; the others are approximately 5° wide. The unique sensor output coming from the signature slot is used in combination with the output from the camshaft sensor to determine which cylinder is ready for fuel and ignition.

The camshaft sensor is mounted at the rear of the exhaust camshaft, outside the cylinder head. It is triggered by a ring magnet in the end of the camshaft. The magnet has four poles arranged asymmetrically at 150° and 210° intervals. Correlation between the magnet poles and the "signature" slot is established in less than one crankshaft revolution, allowing injection and ignition to begin.

A knock sensor permits fine tuning of engine operation rather than just responding to engine-damaging knock.

The four-lead DIS coil module is attached directly to the cylinder head cover, providing very short secondary wire leads.

### Idle Speed Control

The PCM determines idle speed. It actuates a stepper motor and by-pass valve in the throttle body to change idle air flow. In addition to customary warm-up and basic idle speed control, a switch on the power steering high-pressure hose detects higher hydraulic pressure that occurs during steering action and compensates by increasing idle speed. Air conditioning compressor operation has the same effect. To maintain smooth operation, the PCM idle speed control system opens the valve in anticipation of compressor engagement or (with automatic transaxle) a shift out of Neutral.

### Accessory Drive

The alternator is driven by a poly-vee belt from the crankshaft damper. The power steering pump and air conditioning compressor are driven by a separate poly-vee belts. This belt is also adjusted manually by means of a pivoting bracket.

### Air Cleaner

A lightweight two-piece plastic air cleaner housing is remotely mounted and houses a panel-type filter. Air is ducted to the throttle body by a flexible molded hose.

### CRANKCASE VENTILATION SYSTEM

To minimize oil pullover at high rpm, the crankcase ventilation system includes an oil separator in the cylinder head cover. The separator has baffles that inhibit the flow of oil to the intake manifold. Oil drains out of the baffling on a long, narrow plate pinned to the inside of the cover.

### AUTOMATIC SPEED CONTROL SYSTEM

The optional automatic speed control system uses a vacuum servo supplied by manifold vacuum to open the throttle via cable. It allows the car to maintain any selected speed between 35 to 85 mph (56 to 137 km/hr). A vacuum reservoir helps operate the servo on steep grades. An intermediate link between the speed control cable and the throttle cable allows the driver to increase speed, if desired, independent of speed control operation. The system cancels speed control action if the brake is applied, if engine or vehicle speed rises quickly indicating wheel spin or an out-of-gear condition, or if vehicle speed drops suddenly, indicating rapid deceleration.

## TURBOCHARGED DOUBLE OVERHEAD CAMSHAFT 2.0 LITER FOUR-CYLINDER ENGINE

### GENERAL INFORMATION

Standard on the TSi and TSi AWD models is a refined version of the turbocharged, intercooled, double overhead camshaft 2.0 liter four-cylinder engine used previously. Refinements are described below.

### ENGINE PERFORMANCE

For 1995, the manual transaxle version produces 15 horsepower more and the automatic transaxle version 25 horsepower more than in 1994. Torque is up 11 lb-ft with manual transaxle and 25 lb-ft with automatic transaxle. Rpm at the rating points remains the same as in 1994. Increases are attributable to changes in combustion chambers, pistons, turbocharger and intercooler. Ratings for 1995 are as follows:

Transaxle	Power	Torque
Manual	210 bhp @ 6000 rpm	214 lb-ft @ 3000 rpm
	157 kW @ 6000 rpm	290 N•m @ 3000 rpm
Automatic	205 bhp @ 6000 rpm	220 lb-ft @ 3000 rpm
	153 kW @ 6000 rpm	298 N•m @ 3000 rpm

### Cylinder Head

To provide turbulence in the cylinders that contributes to rapid combustion for low emissions and efficient operation, the intake ports cause the incoming air to "tumble" from top to bottom of the cylinders. The ports also provide increased air flow capacity to obtain high power output. The combustion chamber has been modified to reduce the depth of crevices for lower emissions. This change was accomplished without affecting chamber volume. Camshaft bearing inserts have been eliminated — the cams now run directly against the head and cap base material.

## Cylinder Block

To reduce engine noise and improve durability, the lower end of the block has been redesigned to accept a beam-connected main bearing cap unit. This unit interconnects all main bearing caps through rails. Both the rails and the bearing caps bolt to the block. In addition, casting thickness has been increased in the lower end of the cylinder block the bearing bulkheads have been strengthened. The added stiffness has allowed bearing widths to be reduced for less friction.

## TURBOCHARGER

A new turbocharger responds more quickly due to a lighter turbine wheel. It provides more boost than in 1994 because the housing includes a separate port for wastegate flow, allowing more flow at high engine speed. The bearings on this new unit have 360° cooling for increased reliability. The oil and coolant lines are also redesigned for increased reliability. For quieter operation, location of the air bypass valve, which vents excess boost pressure from the intake manifold back to the turbo inlet when the throttle is closed suddenly, has been optimized.

## INTERCOOLER

A high-performance fin-and-tube intercooler reduces intake charge temperature for increased power. Optimization of the internal and external fin designs reduces air flow resistance by 7% and improves cooling efficiency 11%. The new intercooler also weighs 35% less than its predecessor.

## EXHAUST MANIFOLD

New cast steel exhaust manifolds provide less heat absorbing mass than cast iron while providing greater durability. The branches are connected in pairs by firing order above the collector for improved medium to high speed performance.

## PISTONS

New cast aluminum pistons provide a higher compression ratio — 8.5:1 vs. 7.8:1. Width through the pin bosses is reduced by 0.4 in (10 mm) and height of the piston have been reduced to create a lighter piston while the pin holes have been enlarged for increased rigidity. The top ring and the oil ring are thinner, contributing to the reduction in piston height. The top ring land is also thinner to reduce HC emissions.

## CRANKSHAFT

A dual-mode vibration damper is mounted on the nose of the crankshaft. In addition to having a conventional torsional damper in the outer ring, the damper is rubber-mounted at the hub to help damp out vertical vibrations. Fins in the back of the damper help cool the camshaft drive belt by drawing air out of the timing belt cover when the engine is running. Poly-Vee grooves machined into the outer ring of the damper drive the generator, water pump and accessory belts. In addition to reducing engine noise and vibration, the torsional damper reduces load variation on the belts for longer belt life.

## LUBRICATION SYSTEM

To help maintain proper engine oil temperature, coolant is routed through the oil filter adapter. This helps warm the oil when the engine is cold and cool it during high temperature operation.

## Cooling System

To maintain consistent operating temperature and improve reliability, coolant circulates from the water pump to the radiator and returns to the block through the thermostat. Temperature control is more consistent than with thermostat at the outlet from the block because the thermostat opens with pressure rather than against it.

The cooling system filler neck is part of the thermostat housing on the cylinder head. The filler neck is on this housing rather than the radiator because Talon's low hood line makes this is the highest point in the cooling system and therefore the appropriate place for filling or refilling the system after maintenance or repair. A conventional pressure cap attaches to the filler neck.

A check ball in the thermostat allows air in the coolant to escape when the system is cool but seals to assure rapid engine warm-up. The vent also aids in refilling the system after maintenance or repair by preventing air entrapment. By allowing air to escape, the vent also helps prevent large variations in coolant temperature during warm-up previously caused by trapped air.

## Fuel Injection and Ignition Systems

The fuel injection and ignition systems are directly interrelated, both using the same sensors and controlled by the ECM (engine control module). The systems use new direct (distributorless) sensors that provides the following benefits compared to distributor systems:

- quick starts because camshaft and crankshaft sensors give early recognition of which cylinder is to be "fired"
- simplification because the distributor and related parts are eliminated
- greater accuracy because ignition and fuel injection timing signals are taken directly from the crankshaft and camshaft
- reduced maintenance because timing adjustment is never required
- improved idle quality because timing variation is reduced
- improved engine response and idle quality because DIS sensors update data flowing to the ECM more frequently than conventional systems to accurately reflect changing speed and load conditions

Sequential multi-port injection now has injectors that direct a separate spray to each intake valve to provide balanced fuel delivery to all cylinders. Injector targeting and timing have been optimized for driveability and low emissions.

The following sensors are used :

- Crankshaft Position Sensor (CKP) - The crankshaft position sensor determines engine rpm, ignition dwell and timing, injection timing, and, with the camshaft position sensor, cylinder selection for both. With the camshaft position sensor it replaces a photo diode distributor driven from the rear of the exhaust camshaft. The CKP sensor is Hall Effect device mounted on the front of the block. It senses the presence of vanes or shutter blades on a flux screening plate attached to the rear of the timing belt sprocket on the crankshaft. There are two vanes spaced 180° apart. The passing of the vanes through a slot in the sensor switches the input voltage at the ECM to initiate injection and ignition.

- **Camshaft Position Sensor (CMP)** - The camshaft position sensor is used to determine the cylinder on which to initiate injection and ignition when starting the engine. It is mounted on the front of the cylinder head. Like the CKP sensor it is a Hall Effect device. It senses the presence of vanes on a flux screening plate attached to the rear of the intake camshaft timing belt sprocket. The vanes are asymmetrical to provide a signal that will immediately identify the cylinder in compression when the CKP sensor signal calls for injection and ignition.
- **Volume Air Flow Sensor (VAF)** - A new VAF sensor (formerly called the "mass air flow sensor"), which is attached to the air cleaner, determines engine load. The ECM adds fuel in proportion to the VAF sensor output. The VAF sensor output also reduces spark advance at high loads. The VAF sensor is more accurate and lighter than its predecessor. It is also independent of the air cleaner housing to improve serviceability.
- **Throttle Position Sensor (TPS)** - TPS alters fuel injection rate: increasing it by as much as 500% during hard acceleration and reducing it during deceleration. The TPS also decreases spark advance during acceleration.
- **Engine Coolant Temperature Sensor (ECT)** - Fuel injection rate is increased and ignition timing advanced when the ECT indicates a cold engine.
- **Barometric Pressure Sensor (BARO)** - The BARO sensor, which is mounted on the VAF sensor housing, is an indicator of ambient air density. At high altitude air density is lower than at sea level and fuel injection rate is reduced accordingly. Ignition timing is advanced at high altitude.
- **Intake Air Temperature Sensor (IAT)** - Cold air, like a cold engine, calls for additional fuel. The IAT, which is mounted on the VAF sensor housing, provides this information.
- **Oxygen Sensor (O2)** - The O2 sensor indirectly increases or decreases injection rate to maintain a stoichiometric fuel air ratio during closed loop operation. It also provides an input to the fuel trim.

**Fuel Trim (FT)** - Fuel trim, also called adaptive memory, is a function of the ECM. Fuel trim adjusts the amount of fuel injected under a given set of sensor inputs. Short term fuel trim is updated during closed loop operation based on O2 sensor inputs. The short term fuel trim updates the long term fuel trim, which affects injection rate in both open and closed loop conditions.

A piezoelectric knock sensor (KS) allows a high compression ratio by fine tuning ignition timing to avoid engine-damaging knock. It attaches to the rear of the cylinder block. A diaphragm in the KS is tuned to resonate with vibration of the cylinder block caused by knocking, generating a voltage in the piezoelectric element. The voltage is proportional to the severity of the knock. Ignition advance may be reduced by up to 5° when knocking occurs. KS information is stored by the ECM in adaptive memory so that knocking will not occur after a restart. The ECM also regulates turbocharger boost on the basis of the stored KS information.

Four ignition coils are combined into a coil pack that is mounted on the cylinder head cover beneath an appearance shield. To simplify the electronics, a single power transistor fires the coils in pairs — the one, fired during compression, causes ignition; the other, fired during the exhaust stroke, has no effect since a combustible mixture is not present in the cylinder at that time.

### **Idle Speed Control**

The ECM determines idle speed. It actuates a stepper motor and valve in the throttle body to change idle air flow. A switch on the power steering high-pressure hose detects higher hydraulic pressure that occurs during steering action and compensates by increasing idle speed. Air conditioning compressor operation has the same effect. To maintain smooth operation, the PCM idle speed control system opens the valve in anticipation compressor engagement or (with automatic transaxle) a shift out of Neutral. A coolant temperature-sensitive wax pellet controls a Fast Idle Auxiliary Valve that provides additional idle air flow at low temperatures beyond that available from the ECM-controlled valve.

### **Accessory Drive**

Alternator, water pump, air conditioning compressor and power steering pump are all driven by new poly-vee belts from the crankshaft damper for quietness and long life.

### **Air Cleaner**

A new lightweight two-piece plastic air cleaner housing is 4 lb (1.8 kg) lighter than the one on the previous Talon. It is remotely mounted and houses a panel-type filter. Air is ducted to the turbocharger by a flexible molded hose. An inlet air duct delivers outside air to the air cleaner.

### **Automatic Speed Control System**

Optional automatic speed control allows the car to maintain any selected speed between 25 to 124 mph (40 to 200 km/hr). The automatic speed control system uses a vacuum servo supplied by an electric motor-driven vacuum pump to open the throttle. A cable from the servo, acting through an intermediate link, allows the driver to increase speed, if desired, independent of speed control operation. The system cancels speed control action if the brake is applied or if speed falls 9 mph (15 km/hr) below the set speed. With manual transaxle, depressing the clutch pedal also cancels speed control. With automatic transaxle, selecting Neutral also has this effect. System control and response are enhanced by using throttle position as an additional input as follows:

- The amount of actuator travel required to achieve control is varied according to vehicle speed and throttle opening.
- If a downshift is required to maintain speed when climbing a grade with an automatic transaxle vehicle, the system uses vehicle speed and throttle opening data to prevent an upshift until an upshift can be made without hunting between gears.

See also Automatic Speed Control under Body Interior, Secondary Controls in the Body Section.

## ELECTRICAL AND ELECTRONICS

### POWERTRAIN CONTROL MODULE AND SENSORS

Talon uses a Chrysler PCM with the naturally-aspirated engine and an MMC ECM with the turbocharged engine. Both units the customary ignition, fuel injection and emission control functions and cooling system fan speed control, voltage regulator and automatic speed control functions. Memory capacity of the ECM is increased to 48k bytes to help optimize knock control, reduce emissions and improve durability. Both units also provide OBD II diagnostic capabilities although the naturally aspirated engine uses them only with manual transaxle.

For better control of the charging system and idle quality, changes in generator output due to increased electrical load are modulated by the ECM. On previous systems, the sudden application of an electrical load could reduce idle speed briefly, causing idle quality to deteriorate.

Sensors provide the input data used by the ECM. The following new sensors are used:

- The voltage regulator function determines the electrical system charging rate required to keep the battery charged. While it is important to keep the battery fully charged, overcharging can shorten its life. A key charging system factor is temperature, because it determines the voltage of a fully charged battery. A battery temperature sensor helps optimize charging rate for extended battery life.
- A second oxygen sensor has been added downstream of the catalytic converter to monitor catalyst efficiency on cars with OBD II.
- New coolant temperature sensors on both engines respond faster than prior sensors to give more accurate data during transient conditions.

See Emission Control Diagnostics under Protecting The Atmosphere in the Environmental section.

## DRIVETRAIN

### F5MC1 MANUAL TRANSAXLE

#### GENERAL INFORMATION

With the naturally aspirated engine, Talon uses all-new five speed manual transaxle built by Chrysler. It has a three-plane shift arrangement with Reverse in line with Fifth gear. Oil capacity is 2.1 qt (2.0 L) of Manual transaxle fluid which contains special additives to improve shift quality. Ratios are as follows:

Gear .....	Ratio
First .....	3.54
Second .....	2.13
Third .....	1.36
Fourth .....	1.03
Fifth .....	0.81
Reverse .....	3.42
Final Drive .....	3.94
Overall Top Gear .....	3.20

#### SHIFT MECHANISM

The shift mechanism has shift forks fixed to three wide-base "rails" that operate in Teflon®-lined bushings for low friction. Shift levers are located on top of the case for easy access by the shift cables. Separate cross-over (rail selection) and gear selection levers each have pure rotary motion to minimize shift effort. When down-shifting from Fifth gear, a cam in the shift mechanism prevents accidental selection of Reverse by causing the crossover lever to slide smoothly into the 3-4 gate without binding or jamming.

#### SYNCHRONIZERS

All forward ratios are synchronized. A "brake" on the Fifth gear synchronizer that stops gear rotation enables easy engagement of Reverse. High capacity dual-cone brass synchronizers provide low shift effort on First and Second gears. Paper friction material is used on the Third, Fourth and Fifth gear single-cone synchronizers to provide greater durability and resistance to clashing than single-cone brass. Third, Fourth and Fifth gear synchronizers are located on the input shaft, providing low shift efforts through lower rotating inertia that must be accelerated or decelerated to complete a shift.

#### GEARING

Two-piece, welded speed gears are shorter than one-piece gears to reduce shift travel and overall transaxle length. Needle roller bearings on all speed gears provide low friction and long life.

#### CASE DESIGN

The case is cast in two pieces—bell housing and gear case—compared to seven on some prior transaxles to provide better dimensional control and reduce potential leakage paths. Structural ribs on the case provide strength and stiffness with minimal added weight. The added stiffness reduces vibration and noise transmitted by the case. It also contributes to high overall powerplant bending stiffness that results in a natural frequency above the exciting frequency of the engine at peak rpm.

## Clutch

A modular 9.0 in. (228 mm) single dry plate clutch is designed to maintain low effort throughout its life. With modular construction, the clutch cover is riveted, rather than bolted to the flywheel. The disc is captive inside the assembly. The modular clutch is connected to the crankshaft through the same flexible drive plate used to attach the automatic transaxle torque converter. The clutch is hydraulically operated.

## MMC F5M33 AND W5M33 MANUAL TRANSAXLES

### GENERAL INFORMATION

MMC F5M33 and W5M33 manual transaxles are again used with the turbocharged engine. These units are very similar, but the W5M33 has a center differential and viscous coupling to drive the rear axle with AWD. Ratios are as follows:

Gear	FWD	AWD
1st	3.09	3.08
2nd	1.83	1.68
3rd	1.22	1.12
4th	0.89	0.83
5th	0.74	0.67
Reverse	3.17	3.17
Effective final drive	4.15	4.93
Overall top gear	3.08	3.29

See also All-Wheel Drive System below.

## Clutch

The 8.9 in. (225 mm) clutch is hydraulically operated. With all-wheel drive, more durable clutch disc lining material is used to extend clutch life. The diaphragm spring has a static clamp load of 1542 lbs (6860 N) — 11% higher than in 1994, also to extend clutch life. As in 1994, the pedal is spring-assisted to reduce pedal effort.

## MANUAL TRANSAXLE SHIFTER

The dual-cable shifter has shorter throws than that of the previous Talon to improve shift feel. A urethane shift knob with molded shift pattern nomenclature controls the three-plane shifter. On turbocharged models, the shift knob is leather-wrapped. To reduce the transmission of engine noise and vibration to the passenger compartment, the shifter mounting bracket and all cable mounting points are rubber isolated.

## **F4AC1 AUTOMATIC TRANSAXLE**

### **GENERAL INFORMATION**

The F4AC1 automatic transaxle is used with the naturally aspirated engine. It is built by Chrysler where it is known as the 41TE. It consists of an electronically controlled four-speed overdrive transmission with a transfer shaft and a helical-gear final drive unit. It has the following features:

### **ELECTRONIC CONTROL**

A transmission control module (TCM) provides fully adaptive electronic control of all shifting. Shifts are very smooth because the electronic control senses input and output speed changes as shifts occur and adjusts hydraulic pressure accordingly. Adaptive electronic control provides up shifts and down shifts with a smoothness unattainable with strictly hydraulic transmissions. In so doing, adaptive control makes the powertrain feel responsive without harshness. These controls inherently compensate for changes in engine torque or friction element characteristics to provide consistently smooth shifts for the life of the transmission.

The TCM considers operating conditions such as ambient and transmission temperature, engine loading changes caused by climbing grades, loss of engine power at high altitude due to lower air density, and engagement of automatic speed control in determining when shifts should occur. On up-grades, "anti-cycling" logic assures that down shifts do not occur cyclically. After a down shift to Third occurs, the TCM determines the torque required to maintain the existing speed and/or acceleration level and only allows an up shift if the same torque level is available in Fourth gear. When speed control is engaged, down shifts on up-grades occur somewhat earlier than with driver control of the throttle to assure that speed is maintained.

### **OVERDRIVE SWITCH**

Engagement of overdrive (Fourth gear) is controlled by a push button on the side of the shifter. When the switch is in the OFF position, the transaxle will not shift to overdrive and an O/D OFF light in the instrument cluster is illuminated. Having overdrive off, makes driving smoother in traffic at low and moderate speeds where overdrive is not needed. Otherwise, the transaxle may shift in and out of Fourth, causing unnecessary noise and "busyness." With overdrive off, upshifts to Third gear occur at the same speed as in overdrive. Nomenclature is provided on the shifter, showing how the switch operates.

### **TORQUE CONVERTER With EMCC**

The 9.5 in. (241 mm) three-element torque converter has a 2.65 stall torque ratio. An electronically modulated converter clutch (EMCC) reduces or eliminates converter slippage. EMCC increases EPA fuel economy up to 3% compared to a non-EMCC converter while maintaining smooth operation. EMCC isolates the driveline and passengers from engine power pulses, thus avoiding objectionable noise and vibration. EMCC also improves transmission durability by reducing transmission fluid and engine coolant temperatures when climbing grades. On grades, EMCC may be active in Second gear, as well as Third and Fourth gears because some grades require the use of a lower gear to maintain speed.

Slippage is controlled or eliminated by partially or fully engaging the converter clutch during cruise conditions—essentially steady speed driving in Third or Fourth gears. Uncontrolled, converter slippage at cruising speeds is about 250 rpm. During partial engagement, slippage is held at about 60 rpm by modulating the hydraulic pressure that applies the converter clutch. Partial engagement always precedes full engagement to make the transition smooth. EMCC disengages immediately when acceleration is needed.

## Mechanical Features

The transmission uses only clutches to change ratios. Clutches provide smooth, consistent shifts whereas bands, which are used in some transmissions, are harder to control and less consistent. Ratios are as follows:

Gear .....	Ratio
1st .....	2.84
2nd .....	1.57
3rd .....	1.00
4th .....	0.69
Reverse .....	2.21
Effective final drive .....	3.91
Overall top gear .....	2.69

The cast aluminum case reduces noise and vibration due to internal loads through the addition of ribbing that was developed using computer finite element models.

## High and Low Temperature Shift Quality

A sophisticated transmission fluid temperature calculation procedure (algorithm) maintains peak shift quality by adjusting transaxle shifting action after cold starts and during warm-up. It also enhances transaxle durability by calling for EMCC action at high temperatures that might not be otherwise indicated.

Heat added to the fluid by the torque converter, converter clutch, and emanating from pump and gear train parasitic losses, as well as heat removed by the cooler and from the exterior of the transaxle are each computed. Ambient temperature, which significantly affects cooling, is measured or calculated. Also included is a calculation for fluid and air temperatures at start-up.

## Zero-Mile Shift Quality

The transaxle provides excellent shift quality at time of delivery to the customer due to a programming procedure performed just before a car is driven off the assembly line. The procedure measures and stores in TCM memory "fill volume" information unique to each transaxle. "Fill volume," which is the amount of transmission fluid required to fill each actuating element during shifting, affects the timing of shift actions — a critical factor in shift quality. This procedure eliminates the possibility that fill volume variation will cause poor shifts when the transaxle is new.

## Speedometer Drive Signal

The vehicle speed signal that drives the speedometer and odometer and is used by engine controller is provided by the TCM. This makes the speedometer and odometer highly accurate, eliminates the need for a separate vehicle speed sensor and simplifies the wiring by eliminating two of the three wires the vehicle speed sensor required.

The electronic transaxle supplies an output shaft speed signal the primary purpose of which is to control shift quality. The TCM translates this signal into an output that mimics the signal from a vehicle speed sensor. A correlation factor transforms this signal into a vehicle speed signal by adjusting for variations in gearing and tires. The correlation factor is programmed into the TCM memory.

## MMC F4A33 AND W4A33 AUTOMATIC TRANSAXLES

### GENERAL INFORMATION

MMC F4A33 and W4A33 automatic transaxles used with the turbocharged engine, are refined from the 1994 units. They are very similar, but the W4A33 transaxle has a center differential and viscous coupling to drive the rear axle with AWD. Ratios, which remain the same as in 1994, are as follows:

Gear.....	Ratio
1st .....	2.55
2nd.....	1.49
3rd.....	1.00
4th.....	0.68
Reverse.....	2.18
Effective final drive .....	4.38 (FWD), 4.42 (AWD)
Overall top gear .....	3.00 (FWD), 3.03 (AWD)

See also All-Wheel Drive System below.

### ELECTRONICALLY MODULATED TORQUE CONVERTER CLUTCH

An electronically modulated torque converter clutch has been added to improve highway fuel economy.

### REFINED ELECTRONIC CONTROLS

Shift logic in the TCM (Transaxle Control Module) that controls the shift clutch's oil pressure includes the following refinements to enhance already excellent shift quality:

- A feedback feature has been added to the hydraulic pressure controller for the clutches to reduce "shift shock" — the shock created when the transaxle changes gears. This "real time" control smooths out speed variations by modulating clutch pressure.
- A coordinated engine-transaxle torque management system has been added to improve shift quality. When a shift begins, the TCM transmits a signal to the ECM. The TCM responds by retarding the ignition timing, reducing engine torque momentarily during the shift. With engine torque reduced, the shift is quicker yet smoother than without torque management. Spark advance reduction depends on the conditions present during the shift.
- The shift pattern control system includes "fuzzy" logic to reduce transaxle "hunting" — frequent up-shifts and down-shifts when driving on winding or hilly roads. Under these conditions, the lower ratio is selected and maintained. This minimizes the unnecessary and annoying shift cycles, provides additional engine braking effect, and makes it unnecessary for the driver to manually select a lower gear to achieve this condition. The TCM monitors throttle position, vehicle speed, brake switch and engine speed sensors to determine when both 2-3 and 3-4 up-shift speeds should be raised to prevent hunting. For instance, if the transmission would normally upshift when the driver releases the throttle on entry to a curve and then downshifts when the throttle is pressed when exiting the curve, fuzzy logic will keep the transmission in the lower gear. Also if the throttle opening is small and the vehicle acceleration high, or the brakes are used repeatedly, or the rate of deceleration is great while braking, fuzzy logic causes the transaxle to downshift automatically.

### **Auxiliary Cooler**

Because of the high output from the turbocharged engine, an auxiliary oil-to-air cooler is added in series with the oil-to-water cooler in the bottom radiator tank. The auxiliary cooler is mounted forward of the left front wheel and is ducted to an intake opening in the fascia outboard of the left fog light. Louvers in the wheelhouse splash shield aid air flow.

### **AUTOMATIC TRANSAXLE SHIFTER**

The automatic transaxle has an easy-to-grip molded shifter with a top-mounted push button to operate the shift gate. The shifter has quiet roller detents that correlate to the transaxle lever detents for consistency and smooth operation. A range indicator is adjacent to the lever. To reduce transmission of vibration to the passenger compartment and shift lever, there are rubber isolators for the selector cable housing at both the transaxle and the shifter. The shifter includes a cable operated mechanism that prevents locking of the steering column and removal of the ignition key with the transaxle in any but the Park position. This prevents the car from rolling unintentionally and deters theft by preventing the drive wheels from rotating because the transmission is held in Park by the ignition lock. To prevent abrupt starting through mistakes in selector lever operation, a cable-operated mechanism prevent the lever from being moved out of Park unless the brake pedal is pressed.

### **ALL-WHEEL DRIVE SYSTEM**

A compact center differential and viscous coupling unit apportions drive torque efficiently between front and rear wheels. The viscous coupling assures controlled and stable acceleration by automatically detecting the occurrence front or rear wheel slip, as indicated by a speed differential, and transferring torque to the non-slipping wheels. This is especially effective on wet and slippery or sharply curving roads. The viscous-coupled center differential provides the advantages of direct four-wheel drive — standing acceleration, rotation efficiency and directional stability — and of an open center differential — elimination of tight corner braking phenomena, low vibration and low fuel consumption.

Under normal driving, torque is allocated to the front and rear wheels equally. When there is a front-to-rear speed difference, the viscous coupling transfers torque to the slower moving axle in proportion to the speed difference. The viscous coupling consists of a series of closely spaced discs, alternately connected to the front and rear drive shafts, operating in a silicone oil. A front-to-rear speed difference causes the discs to rotate relative to one another. The viscosity characteristic of the silicone oil provides relatively little resistance to this movement, when the speed difference is small, giving smooth operation like an open differential. However, when the difference is great, the resistance increases greatly, directing torque to the axle operating at the lower speed.

A multi-piece propeller shaft with a Lobro® joint and rubber-mounted center bearings delivers torque from the transaxle to the rear differential. The Lobro joint allows small changes of angle and length in the propeller shaft while minimizing vibration due to angular variation. It is automatically self aligning to maintain consistent input and output speeds for low vibration and its construction has inherently better rotational balance than other constant velocity joints, making it better suited to the high speed rotation of the prop shaft. The Lobro joint also provides less resistance to axial movement than a spline.

The rear differential housing is attached to the rear suspension cross member through three rubber mounts to minimize NVH. The housing is finned to provide cooling during high speed operation. A viscous-coupled limited slip differential is optional with AWD. It limits side-to-side rear wheel speed variation better than mechanical limited-slip units. Like the viscous coupled center differential, it causes minimum resistance to a small speed difference between the wheels. Under normal driving conditions the driving characteristics are the same as with an open differential. As with mechanical limited-slip differentials, when one wheel starts to spin, torque is transmitted to the wheel with the greater traction. However, the viscous-coupled differential is not torque sensitive — operational characteristics do not change depending on the amount of torque applied — as are mechanical units, making vehicle control easier.

## **AXLE SHAFTS**

Unequal length front axle shafts are used on FWD models. The shorter shaft includes a dynamic damper. On AWD models, the longer shaft is replaced by an assembly consisting of an inner shaft supported by an additional ball bearing and an articulating axle shaft of the same length as that on the opposite side. All axle shaft assemblies — front and rear — use plunging tripod inboard universal joints to allow changes in length with suspension travel and steerable "Birfield"-type outboard constant velocity joints.

To increase durability, molded plastic replaces synthetic rubber for outboard driveshaft boots. They have superior weather-ability and resistance to ozone. They also have higher tear and tensile strength than the previous material to resist damage from flying debris.

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## EXTERIOR PACKAGING

Consistent with the previous generation, the new 1994 4-door sedan has a sleek, aerodynamic shape with a low center of gravity. The interior is made of lightweight materials. All of these changes add to the 1994 sedan's weight savings, which is 100 lbs. over the 1993 model.

Dimension	1993	1994	Difference
Overall length	172.1 in. (4375 mm)	173.0 in. (4395 mm)	+0.9 in. (23 mm)
Overall width	66.3 in. (1683 mm)	66.7 in. (1695 mm)	+0.4 in. (10 mm)
Overall height	57.5 in. (1462 mm)	57.4 in. (1458 mm)	-0.1 in. (3 mm)
Wheelbase	92.8 in. (2356 mm)	92.9 in. (2359 mm)	+0.1 in. (3 mm)
Front overhang	30.7 in. (779 mm)	31.7 in. (805 mm)	+1.0 in. (25 mm)
Rear overhang	30.4 in. (772 mm)	31.1 in. (790 mm)	+0.7 in. (18 mm)
Ground clearance	5.1 in. (129 mm)	5.2 in. (132 mm)	+0.1 in. (3 mm)
Trunk height	21.1 in. (536 mm)	21.4 in. (544 mm)	+0.3 in. (8 mm)
Trunk depth	21.1 in. (536 mm)	21.2 in. (540 mm)	+0.1 in. (3 mm)

## EXTERIOR WEIGHTS & CAPACITIES

### ASSEMBLY FACTORY

The new 1994 sedan has a new 50% increase in the payload capacity. The weight is increased by 100 lbs. (45 kg) and an increase in the payload capacity. The new 1994 sedan has a payload capacity of 1000 lbs. (450 kg) and an increase in the payload capacity. The new 1994 sedan has a payload capacity of 1000 lbs. (450 kg) and an increase in the payload capacity.

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## BODY EXTERIOR

### EXTERIOR DESIGN

The new Talon features a steeply raked windshield, short hood and a wide stance. Smooth organic lines begin with the power-bulge hood that blends smoothly into the fascia. The car has no grille, only a set of air intakes in the lower portion of the fascia. The windshield wipers are semi-concealed at the base of the windshield. A black molded plastic grille fills the gap between hood and windshield, including the wiper mechanism. All windows are flush with the adjacent body panels. For a pillarless appearance, door windows are frameless and quarter windows overlap the roof pillars. A blackout treatment in the glass makes the pillars invisible. Also, all moldings and painted surfaces above the belt line are gloss black. A smoothly curving lift gate supports a gloss-black spoiler at the base of the rear window. A high rear deck is accentuated by two-color taillights and a matching center appliqué above an integrated fascia.

### EXTERIOR PACKAGING

Compared to its predecessor, the new Talon has a longer wheelbase and wider track but is lower and shorter with less overhang. The increase in overall width is less than the increase in track. All of these changes contribute to Talon's aggressive, wheels-to-the corners, stance.

<b>DIMENSION</b>	<b>1995</b>	<b>1994</b>	<b>DIFFERENCE</b>
Overall Length	172.2 in. (4375 mm)	172.8 in. (4390 mm)	-0.6 in. (15 mm)
Overall Width	68.3 in. (1735 mm)	66.7 in. (1695 mm)	+1.6 in. (40 mm)
Overall Height	51.0 in. (1295 mm)	51.4 in. (1306 mm)	-0.4 in. (11 mm)
Wheelbase	98.8 in. (2510 mm)	97.2 in. (2470 mm)	+1.6 in. (40 mm)
Track, Front	59.7 in. (1515 mm)	57.7 in. (1465 mm)	+2.0 in. (50 mm)
Track, Rear	59.4 in. (1510 mm)	57.1 in. (1450 mm)	+2.36 in. (60 mm)
Overhang, Front	36.6 in. (930 mm)	38.4 in. (975 mm)	-1.8 in. (45 mm)
Overhang, Rear	36.8 in. (935 mm)	37.2 in. (945 mm)	-0.4 in. (10 mm)

Exterior Dimension Comparisons

### AERODYNAMICS

Talon has a drag coefficient of 0.29 — nearly 20% lower than the previous model. This results in an increase in highway fuel economy of up to 8% and an increase in top speed capability. Talon also has an extremely low coefficient of lift both front and rear — 0.07 — to assure high-speed stability. Features that contribute to the aerodynamic capabilities include:

- Subtle refinements of the body and fascia shape that includes tapering fore and aft of the wheels and a narrowing of the rear roof pillars
- Glass surfaces flush with the body panels
- Liftgate leading edge "under flush" — slightly lower — relative to the roof panel to prevent turbulence
- Low-drag outside mirrors
- Body side air dams

- Spoiler-style rear combination light units
- Smooth floor pan under surface (without stiffening beads)

## **STRUCTURE**

Finite element analysis was used to develop an all new Unibody structure for Talon that has 60% greater torsional rigidity and 50% greater bending stiffness than the previous model. The increased stiffness contributes to handling precision, ride quality, low noise and low vibration—an overall solid feel. Door and liftgate openings are also less subject to distortion over time, keeping the body “tighter”. High body bending stiffness contributes to ride quality because the body's natural frequency is higher than that of inputs coming from the suspension system and will not resonate with them. High bending stiffness also helps reduce the vibration of secondary components such as the instrument panel and steering column, because it does not transmit suspension frequencies. High strength steel is used for 28% of major body-in-white component to provide enhanced body stiffness and provide dent resistant outer panels. Panels that increase stiffness include front and rear longitudinal rails, the radiator lower cross member windshield pillars and the deck lid lower panel. For dent resistance high-strength steel is used for door, hood and liftgate outer panels and front fenders.

## **SIDE AIR DAMS**

Aerodynamic side air dams are standard on TSi and TSi AWD. They are molded from TPO (thermoplastic olefin) material for increased rigidity, resulting in greater long term dimensional integrity than the previous Talon air dams. The air dams extend from wheel opening to wheel opening and include sections on the lower portions of the doors. They are painted body color over gray colored base material which makes stone chips in the paint less conspicuous.

## **BUMPERS AND FASCIAS**

Body color front and rear fascias wrap around the body to the wheel openings, providing a unified appearance. They are molded from reinforced (R-RIM) urethane for durability and superior appearance. The car has no grille. Cooling air enters through openings in the lower portion of the fascia.

The bumper system uses a press formed beam of glass fiber reinforced thermoplastic topped by layer of polypropylene foam. It provides protection against impact damage at speeds up to 5 mph (8 km/hr). This construction saves 14.5 lb (6.6 kg) at the front and 14 lb (6.4 kg) at the rear compared to the previous Talon. Bumper loads are transferred to the body structure through stamped steel stays bolted to the beam and the longitudinal rails.

## **HOOD AND LIFTGATE**

The hood is supported in the open position by a prop rod. The rod fits into a slot in the hood inner panel that is identified by a stamped arrow. The end of the prop rod that fits into the slot is plastic coated to prevent paint damage. When not in use, the rod is clipped to the top of the radiator yoke.

The liftgate is counterbalanced by gas pressure cylinders for smooth easy opening and closing.

## **ORNAMENTATION**

Molded PVC dimensional graphics nameplates and badges along with integrally molded graphics give the appearance of organic oneness to the body and its markings. The following nameplates and badges are provided:

- A dimensional graphic “Eagle” badge mounted between the headlights

- A dimensional graphic Chrysler "Pentastar" on the right front fender, aft of the wheel (ESi only)
- A Chrysler "Pentastar" molded into the body side air dams aft of the front wheels (TSi and TSi AWD)
- A dimensional graphic "16V DOHC" on the quarter panel forward of the wheel (ESi only)
- "16V DOHC TURBO" nomenclature molded into the body side air dams forward of the rear wheels (TSi and TSi AWD)
- A body-color dimensional graphic "Eagle" badge and "EAGLE" nomenclature on the driver's side of the rear fascia
- Body-color dimensional graphic model designation nomenclature: "ESi," "TSi," or "TSi AWD" on the passenger's side of the rear fascia
- Amber center appliqué below the liftgate matching the turn signals lights with "TALON" nomenclature stamped in the center

Narrow body color body side moldings and gray sill stone protection guards are standard on ESi.

## GLASS

All glass is mounted flush with the adjacent body panels to reduce aerodynamic drag and wind noise. Tinted glass is standard. The windshield includes a dark tinted band across the upper edge. Windshield, quarter windows and the liftgate window are adhesive bonded to the body panels. The door opening and quarter window upper edge are trimmed with a black molding that has a concealed drip trough and blends with the roof panel. The liftgate window exposed edge is trimmed with a flat push-on molding. The liftgate window has a blackout treatment at its top edge. The one-piece windshield molding has a variable cross section. Along the pillars, a raised lip helps prevent water on the windshield from running around to the side windows for improved visibility. At the top of the windshield the molding is flat to minimize wind noise and drag. Smooth transitions at the corners of the molding provide a clean, attractive appearance.

## CORROSION PROTECTION AND PAINT

Galvanized steel is used for 80% of all major body-in-white parts including all panels exposed to possible corrosion except the roof. Further prevention against the formation of rust and against stone damage is provided by coating the sills with polyvinyl based primer.

## BODY SYSTEMS

### POWER SUNROOF

A power sunroof with tilt and slide features is optional on all models. The tinted glass panel provides a well-lighted, open environment whether closed, tilted or open. A two-piece manual sunshade is included. The sunroof has the following features:

- The rear of the panel rises 1.4 in. (36 mm) at its full tilt position.
- The panel slides outside the body for minimum effect on headroom.
- Maximum opening is 10.7 in. (272 mm) deep and 25.3 in. (643 mm) wide.
- A single rocker switch provides both slide and tilt operation through unique logic controlled by a microprocessor. The switch bezel includes a graphic showing switch functions.
- An air deflector pops up at the front of the opening when the panel slides back to minimize wind noise and buffeting at all driving speeds.
- The sunshade is trimmed with headliner fabric and has a molded finger depression for easy operation.
- For convenience, microprocessor control logic allows operation for up to 30 seconds after the ignition is turned off. If the panel is sliding closed during this time, it will automatically go to the fully closed position even if the time has expired. Once closed, it cannot be operated again without turning the key "on". If either door is opened during the 30 seconds after key "off", the timer starts over.

Operation is as follows:

- To tilt the panel up
  - press the switch in the "open" direction

The rear edge of the panel rises as long as the switch is held or until it reaches the full tilt position.

- To reduce the tilt opening or close the sunroof completely
  - press the switch in the "close" direction

The opening is reduced as long as the switch is held or until fully closed.

- To slide the panel open
  - Press the switch in the open direction to begin tilt operation, release it and press it again

OR (if the panel is already tilted up)

- Press the switch in the open direction

The panel slides automatically to its fully open position.

- To stop sliding action short of fully open
  - Press the switch in the close direction

The panel stops as soon as the switch is pressed. However, holding the switch for more than two seconds will cause the panel to reverse direction and return to the forward (full tilt) position.

- To close the panel
  - Press the switch in the close direction

The panel slides automatically to its full forward position but remains tilted up.

AND

- Press and hold the switch in the close position

The opening is reduced as long as the switch is held or until fully closed.

OR

- Press and hold the switch in the close direction

The panel moves forward and then tilts down, stopping when the fully closed position is reached.

The microprocessor includes logic to prevent damage to the mechanism or injury to occupants if panel movement is obstructed. These actions are as follows:

- If an external force is applied during the tilt up operation the panel automatically goes to its full tilt position as soon as the force is removed.
- If movement is obstructed during tilt down operation, the motor reverses and the panel immediately returns to the full tilt position
- If movement is obstructed while the panel is sliding closed, the motor reverses and the panel moves approximately 2.36 in. (60 mm) rearward and stops.

An electric motor unit moves the panel through a series of cables and links. A cam and two limit switches in the motor unit stop the panel at its full tilt, full open and fully closed positions. The linkage also assures positive sealing by pulling the panel down into the opening, flush with the roof panel, in the fully closed position.

The motor unit and microprocessor control unit mount in the windshield header area forward of the panel to minimize their effect on head room.

## EXTERIOR LIGHTING

### Front Lighting

All customary forward lighting functions — headlights, parking lights and turn signals — are located behind a single clear lens of chip resistant plastic that is hard coated to resist scratches as well. The lens is inclined rearward 40-45° and curved to blend with the body contours. The four halogen-bulb headlights have reflectors with multiple facets laid out in a grid pattern to diffuse and project the light down the road. Each facet projects light in a specified direction, providing a beam pattern that is both wider at short range and approximately 5% longer overall than that of the previous Talon. The multi-faceted reflectors also permit lens inclination up to 60° from the plane of the bulb for design and/or aerodynamic reasons whereas faceted lenses are limited to a 30° inclination. The headlight units include internal aiming systems that allow the housing to be fixed, minimizing gaps to the body.

Combination parking lights and turn signals are located in the outboard ends of the forward lighting units. One dual filament bulb provides both functions. An amber lens over the bulb is covered by a faceted clear lens to provide a more unified appearance with headlights.

Front side marker lights are mounted in the front fascia.

Fog lights are standard on TSi and TSi AWD. Like the headlights, they have clear lenses and multifaceted reflectors that diffuse and project the light onto the road.

## **REAR LIGHTING**

Rear combination light assemblies have three-color lenses. The amber upper section is houses the turn signals. Clear lenses are provided for the back up lights. Taillights and brake lights are the customary red color. Two bulbs in each unit provide these functions. In addition, the lenses wrap around the sides of the body, providing the side marker function as well.

The CHMSL (center, high-mounted stop light), composed of a series of LEDs, is mounted in the trailing edge of the spoiler.

## **DOOR SYSTEMS**

### **Door Windows**

Door windows are frameless for a light airy upper body appearance. To guide each window during movement, dual tracks and cross arm regulators are used. The tracks are coated with molybdenum disulfide to reduce friction and roller noise. The base of each window is located by the tracks. The upper edge is guided on the outside by a full-length tubular stabilizer attached to the belt molding and stabilizer cushions. on the inside, it is guided by two adjustable stabilizer cushions. The tubular stabilizer provides support while minimizing the possibility of damage to the glass due to the presence of foreign matter. To hold the window firmly in place when it is fully raised, stabilizer hooks attached to the base of the glass engage the inner stabilizer cushions and pull the glass inward. This also stops further upward motion. In addition, striker plates on the outside of the window at its base slide under the outer stabilizer cushions, adding to the inward pressure.

With manual windows, the crank handle is placed low and forward on the door trim panel for easy access. An electric motor replaces the crank with power windows.

See also, Center Door Locks under Security Systems in the Safety and Security section.

### **Door Hinges, Latches and Handles**

Molded outside door handle assemblies are flush with the door outer surface. On TSi and TSi AWD they are body color. On ESi they are black. Both versions include black key cylinder bezels. Molded, L-shaped inside door handles are recessed into the door trim panels and pivot on a vertical axis. The manual lock knob rotates on the same axis as the handle. A red dot on the knob is exposed when the door is unlocked. A precision two-position door check is used on each door. Two position door checks hold the doors open for entry and exit in tight parking spaces, or open wider where room is ample.

### **Door Sealing**

Extruded tubular weather strips for the glass are mounted to the body. Stamped weather strip retainers include a narrow window retainer strip molded onto their outboard edges. This holds the windows on their seals at high speeds, reducing noise from air being forced out past the weather strips.

Lower weather strips are mounted on the doors and seal against the body outboard of the sill to help keep the area clean.

### **Hood and Liftgate**

The hood includes a power bulge on the driver's side.

The liftgate provides a full frame to support the large rear window. The liftgate is counterbalanced by gas pressure cylinders that are mounted outboard of the weather strip to provide unencumbered rearward vision.

## EXTERIOR MIRRORS

Black aerodynamic dual exterior mirrors are standard on all models. Power mirrors are standard on TSi and TSi AWD. For efficient operation, separate motors provide lateral and vertical movement for the mirror head. Heat is provided by a printed-circuit resistance grid on the back surface of each mirror. The heaters operate with the rear window defroster.

See also Instrument Panel and Steering Column Mounted Controls under Secondary Controls in the Body Interior section.

## WIPERS AND WASHERS

### Windshield Wipers AND WASHERS

Two-speed windshield wipers with variable delay intermittent operation standard.

The new Talon has a larger windshield than its predecessor, requiring longer wiper blades and a 33% more powerful motor. In spite of the larger windshield, the wipers clear 13% more of the total area than did their predecessors. Wiper blade length is increased from 19.7 in. (500 mm) to 23.5 in. (598 mm) on the driver's side and 22.1 in. (563 mm) on the passenger's side.

To keep the blades working effectively when driving at high speeds, the spring-loaded hinge at the base of each arm is twisted relative to the pivot axis. This twist increases the maximum speed at which the blades remain on the glass by 12-18 mph (20-30 km/hr) over a system without this feature. The twist imparts a downward component of force on the blade that increases in proportion to the aerodynamic force against the blade.

The windshield washer system has two hood-mounted nozzles, each with two jets. On ESi, the windshield washer fluid reservoir with integral pump and level sensor is mounted in the engine compartment. On TSi and TSi AWD the reservoir, pump and level sensor under the spare tire are shared by both windshield and liftgate washers.

The windshield wiper system is a modular assembly consisting of motor, linkage, and wiper pivot drivers attached to a tubular frame. Modular assembly assures accurate positioning of the blades on the windshield for proper clearing. The module is mounted in the cowl plenum chamber through six rubber isolators to minimize noise transmission to the passenger compartment.

### REAR WINDOW Wiper AND WASHER

A one-speed rear wiper with fixed intermittent operation is standard. The wiper motor is attached to the liftgate at the base of the window. The wiper pivot is recessed in the spoiler. The blade parks parallel to the side of the window. The liftgate window washer has a single nozzle with two jets. Its reservoir and pump are under the spare tire. The reservoir is filled through a covered tube under the edge of the liftgate but outboard of the weather strip to reduce the possibility of spilling fluid into the cargo area.

## ETACS

ETACS (Electronic Time and Alarm Control System), a centralized electronic module, provides control and operating signals for the following functions:

- Ignition key illumination  
When the driver's door is opened the ignition key cylinder is lighted. The light remains for 10 seconds or until the key is turned, whichever comes first.

- Interior lamp dimming

Interior lamps are turned on when a door is opened. As soon as both doors are closed, the lamps dim to off in approximately 6 seconds. If the key is turned during this time, the lamps are turned off immediately.

- Central door locks

See Central Door Locks Under Security Systems in the Safety and Security section.

- Key-in-ignition door lock prevention

See Central Door Locks Under Security Systems in the Safety and Security section.

- Power window timer

See Door Mounted Controls under Secondary Controls in the Body Interior section.

- Rear window defogger timer

The rear window defogger operated for approximately 11 minutes unless switched off sooner.

- Seat belt warning timer

When the ignition switch is turned "on", the ISO seat belt warning graphic flashes for 6 seconds (four times ) as a reminder to the driver to buckle up.

- Seat belt warning buzzer

When the ignition switch is turned "on", a chime sounds for 6 seconds (four times ) as a reminder to the driver to buckle up. The buzzer stops if the belt is buckled before the warning sequence is complete.

- Reverse gear chime

When the ignition switch is "on" and the automatic transmission is shifted to Reverse gear, a chime sounds intermittently.

- Key reminder chime

If the ignition key is in the key cylinder when the driver's door is opened, a chime sounds intermittently to remind the driver of this condition.

- Light monitor chime

If the headlights are on, the ignition is "off" and the driver's door is opened, a chime sounds continuously. If the key is still in the ignition, the key reminder takes precedence over the light monitor.

## WIRING SYSTEMS

### POWER DISTRIBUTION CENTER

Turbocharged and naturally aspirated engine models have unique underhood power distribution centers (PDC). Each houses cartridge fuses to protect major power distribution circuits, blade-type for circuits that are supplied directly from the PDC rather than through the ignition switch, and relays for underhood power equipment. They are located near their respective batteries to minimize voltage drops in the wiring for an efficient electrical system. Power flows from the PDC to all circuits except the starter. A snap-on cover protects the contents.

### WIRING CONNECTORS

For reliability, electronic control system terminals are gold plated to prevent corrosion. Multipole waterproof wiring connectors are used keep out contamination.

## **BODY INTERIOR**

### **PACKAGING**

#### **INTERIOR**

The instrument panel layout clearly separates instruments directly related to driving operation from other controls.

#### **CARGO AREA**

The cargo area provides 16.6 ft<sup>3</sup> (470 L) storage capacity with front-wheel drive and 13.5 ft<sup>3</sup> (382 L) with All-Wheel Drive an increase of over 6.6 ft<sup>3</sup> (186 L) compared to the previous Talon. Its hardboard floor is hinged at the front and has a strap that hooks to the inside of the liftgate for easy access to the spare tire, jack and tire changing tools. A tray under the cargo floor holds the tire changing tools, which are inserted in a compartmented bag with snap closure to avoid rattles.

### **PRIMARY CONTROLS**

#### **STEERING WHEEL AND STEERING COLUMN**

A four-spoke steering wheel with molded urethane rim is standard on ESi. On TSi and TSi AWD the wheel is leather wrapped. An "Eagle" emblem is formed into the one-piece molded trim cover for the spokes and the air bag. Horn switches are mounted in the upper spokes for easy thumb operation. The horn is operated by pressing molded button "spots" with ISO "horn" graphics in the trim cover.

An optional low-pivot tilt feature allows the steering wheel height to be adjusted vertically to suit drivers of different sizes. For driver comfort, this tilt mechanism allows the steering wheel to remain close to the design condition through the full range of adjustment. Adjustment is continuous rather than having specific steps. A clamp operated by a lever to the left of the column locks it in place after adjustment. The lever has a molded handle.

The ignition key cylinder is illuminated for nighttime convenience. It also has a double-action mechanism to reduce the possibility of locking the steering column with the car in motion. To move the cylinder to LOCK the key must be pushed in.

#### **INTERIOR MIRRORS**

The inside rear view mirror is connected to the windshield-mounted base by a double-jointed link. It has a manual day-night control lever. With the optional sunroof there are also dual map reading lights in the base of the mirror.

See also Interior Lighting elsewhere in this section.

### **INSTRUMENT PANEL AND CONTROLS**

#### **INSTRUMENT PANEL**

The instrument panel has a grained, padded surface. The center section of the panel is turned toward the driver for visibility and easy access to the controls. The HVAC (heating, ventilating and air conditioning) control, which is located in this portion of the panel, is also tilted upward for this reason. The instrument cluster hood is extended over this section to integrate it with main panel.

The bin-type glove compartment has a locking, double-squeeze latch that is offset toward the driver for easier access. The bin is divided laterally. The flocked smaller section to the left is intended as a sunglasses holder.

## **INSTRUMENT CLUSTER**

The ESi cluster differs slightly from that on TSi and TSi AWD. All gauges and indicator lamps are located in the instrument cluster. The following features are common to both instrument cluster:

- A large 170 mph analog speedometer graduated in 5 mph increments with metric secondary units
- An six digit odometer and a four digit trip odometer with push-button reset
- A large 9000 rpm (8000 with automatic transmission) tachometer with 7000 rpm "red line" graduated in 1000 rpm major increments with 100 rpm minor graduations
- ISO graphic indicators for charging system (red), oil pressure (red), driver's seat belt (red), door/liftgate ajar (red), high beam headlights (blue), low fuel (amber), low engine coolant level (amber), low washer fluid (amber) and optional anti-lock brakes (amber)
- Green left and right turn signal arrows that also flash simultaneously when the hazard warning lights are operating
- Red BRAKE and SRS indicators
- Amber CHECK ENGINE indicator
- Green CRUISE indicator with optional electronic automatic speed control
- Green SECURITY indicator with optional Security Alarm System
- Automatic transaxle range indicator with optional automatic transaxle
- OVERDRIVE and O/D OFF indicators with optional automatic transaxle
- Red A/T TEMP (automatic transaxle oil temperature) indicator with optional automatic transaxle
- White graphics on a black background with red pointers
- Amber lighting through the gauge graphics and lighted gauge pointers

Both speedometer and odometer are operated by electric motors using electronic signals from a vehicle speed sensor mounted on the transaxle or from the TCM.

On ESi, fuel level and coolant temperature gauges flanking the tachometer and speedometer, respectively. On TSi and TSi AWD, turbo boost and oil pressure gauges are paired in the opening to the left of the tachometer and the fuel level and coolant temperature gauges are paired on the right.

## **HEATING, VENTILATING AND AIR CONDITIONING**

### **GENERAL**

A heater-only system is standard on all models. Air conditioning is optional. Both systems use the same system of ducts and outlets to deliver air to the passengers.

### **HEATER/AIR CONDITIONER CONTROLS**

"Mode", temperature and fan speed controls have rotary knobs. The mode control has 7 detents designated by ISO symbols: "panel," "bi-level," "floor," "mix" and "defrost". There are also two additional bi-level positions. The fan has four speeds and "off." The temperature control is continuously variable. Temperature range is denoted by blue for cold and red for hot. The "recirculation" control is a sliding knob, permitting the proportion of inside and outside air to be varied continuously. Action of all controls is smooth and light, with positive detents throughout the range of travel. Nomenclature for control operation is lighted from the rear for easy nighttime visibility.

The air conditioning compressor is actuated by push button that includes an illuminated "on" indicator. The compressor may be operated in two modes. With the button pushed in half way the system operates in economy mode and the indicator is amber. Economy mode provides better fuel economy than normal mode because the compressor provides just enough cooling to achieve the outlet temperature programmed into the automatic compressor control module. Pushing the button all the way in actuates the normal mode, shown by a green light in the indicator. In normal mode, the air is cooled to 37 °F (3 °C) for maximum dehumidification and then reheated to the desired outlet temperature.

### **INSTRUMENT PANEL Airflow DUCTS AND OUTLETS**

Four upper level vent outlets, two in the center of the instrument panel and one in each door deliver air flow in the vent, panel and bi-level modes. Vents in the door trim panels are closer to the passengers than instrument panel-mounted outlets. Molded gaskets seal the air passages from the instrument panel to the doors. Air flow from each of these outlets may be aimed vertically and laterally through the use of movable vanes. Moving the vanes to their extreme left position effectively stops flow. This capability is indicated by graphic nomenclature next to each outlet.

The center outlets have a unique new cool air bypass feature. An air duct by passes the heater core and provides outside air directly to these outlets. When air through the panel and/or floor outlets is being heated for overall comfort, unheated air from this duct can provide a localized cooling effect. By-pass air may be blended with or replace air from the HVAC housing using levers adjacent to each outlet. ISO graphic symbols designate the lever positions: blue (open to outside air) and white (closed).

Slots in the forward edge of the instrument panel top cover deliver air to the windshield during heat and defrost modes. Defroster slots in the door trim panels deliver air to help clear the side windows. Air passages from the instrument panel to the doors are sealed by the same gaskets as the ventilating air. Air flow from these slots is greater and more effectively placed relative to the windows than on the previous Talon. The side window defrosters receive air in the same modes as the windshield defroster slots.

Floor outlets distribute air to the driver and passenger foot wells. To add heat for rear seat passenger's feet, ducts in the center console direct air flow under the front seats.

### **VENTILATION SYSTEM**

To help keep windows clear of fog, incoming air flow with the vehicle at rest has been increased 9% over the previous Talon. Air enters the passenger compartment through a grille at the base of the windshield. An air exhauster in the cargo area increases air flow to the rear passengers and reduces aspiration noise associated with air exiting past the door seals when the fan is "on". Air exits to a low pressure area inboard of the fascia that provides an extracting effect. The exhauster includes a one-way valve to allow flow only from the inside out.

### **HVAC Unit**

A new HVAC (heating, ventilating and air conditioning) unit has a larger fan with optimized blade pitch to provide 18% more air flow with less noise than the previous Talon. A new heater core has less air flow restriction than the previous Talon. The interior of the HVAC unit is aerodynamically designed to reduce flow restriction, for quieter operation, faster cooling and faster heating.

In "normal" air conditioning mode or when air conditioning is off, outlet air temperature is raised above incoming or fully air conditioned levels by positioning a damper that directs some or all of the air through the continuous-flow heater core. The damper is positioned by the temperature control knob. A state-of-the-art plate and fin evaporator contributes the outstanding performance of the air conditioning system. On ESi, a fin temperature sensor controls compressor cycling to maintain the desired cooling level. TSi and TSi AWD use a variable displacement compressor to control evaporator temperature during normal mode operation.

In economy air conditioning mode, air temperature measured at the inlet to the evaporator is used in conjunction with the fin temperature sensor by the automatic compressor control module to control clutch cycling. The inlet and outlet air temperatures conditions that cause compressor cycling during economy mode are programmed into the automatic compressor control module.

### **Underhood Components**

A large capacity scroll-type variable displacement used on TSi and TSi AWD offers the following advantages compared to the more common cycling compressor:

- Engine speed fluctuations due to compressor cycling are eliminated. The compressor runs continuously and load is applied to the engine smoothly based on cooling demand.
- Incoming air temperature is nearly constant because the compressor runs continuously, providing only the level of cooling required to maintain this temperature.
- Cooling performance at idle is noticeably better because the compressor has a 12% higher capacity.
- The control system is interconnected with the ECM, allowing the ECM to momentarily shut off the compressor during heavy engine loads.

Air conditioning compressors used in automotive applications have far more capacity than is required in many situations. In such situations, the control system must provide a means to temporarily reduce the compressor capacity to prevent excessive cooling that causes moisture in the air from freezing on the surfaces of the evaporator and reducing cooling or even blocking the flow of air in extreme cases. The variable displacement compressor does this by automatically reducing its pumping capacity (displacement) to what is required to keep the evaporator above freezing, rather than cycling off and on.

The ESi compressor also offers 12% more cooling capacity than the previous Talon. It has 10 double-acting pistons driven by a swash plate—a slanted disc rotated by the input shaft. The ESi compressor cycles on and off to control evaporator temperature above 37 °F (3 °C) for fastest cooldown and maximum dehumidification. The fin temperature sensor in the evaporator provides the signal that controls this function. A conventional temperature-sensing expansion valve is used, as are a low pressure cutout switch and high pressure relief valve for compressor protection. In addition, a speed sensor monitors compressor operation. If the compressor is locked (not rotating), the automatic compressor control module flashes the indicator in the compressor control push button.

A multi-path tube and fin condenser on TSi and TSi AWD minimizes refrigerant and air flow restriction to enhance cooling performance. ESi uses a slightly less efficient two-pass condenser.

Both air conditioning systems use environment-friendly R-134A refrigerant which contains no ozone layer-depleting chlorine.

## SECONDARY CONTROLS

### **AUTOMATIC SPEED CONTROL**

Optional automatic speed control is selected by pushing the CRUISE button on the instrument panel to the left of the steering wheel. A lamp on the cluster indicates that the system is "on". The manual control switch is mounted in the steering wheel hub with its three-function control lever extending to the right between the steering wheel spokes. The lever has a flat surface with operating nomenclature facing the driver. Choices are: ACC/RES, CANCEL and COAST/SET. It is operated with the fingers. Push down momentarily to SET the system at the current speed. Push down and hold to COAST to a lower speed as long as the lever is held. Push up momentarily to RESume the previous set speed after braking. Push up and hold to ACCelerate to a higher set speed without using the throttle. A new set speed is established when the switch is released after using COAST or ACCelerate. Pull the lever back toward the steering wheel to CANCEL speed control. This disengages the speed control but retains the previous set speed in memory where it can be reestablished by pushing the lever up to the RESume. position. CANCEL has the same effect as tapping the brake pedal but does not send an unneeded warning signal to the following driver. It is especially helpful in freeway traffic situations where speed must be reduced briefly on occasion.

### **INSTRUMENT PANEL MOUNTED CONTROLS**

Switches are ergonomically placed with high priority functions closest to the driver. The following controls are mounted on the instrument panel. All are illuminated for nighttime operation:

- The push-button hazard warning switch is just to the right of the instrument cluster. Central mounting of the hazard warning switch also makes it accessible to the front passenger. It is denoted by a red triangle.
- The push-button rear window defroster switch to the right includes an amber LED "on" indicator.
- The push-button fog light switch (TSi and TSi AWD only) is located to the left of the instrument cluster.
- Cluster, radio and switch illumination intensity is controlled by a rheostat with ISO graphic symbol below the lower left edge of the instrument cluster.
- The rear wiper and washer control is located in the center section of the panel to the right of the center air flow outlets. It combines rotary action for intermittent or continuous operation with push button action for the washer.
- A rotary knob to the right of the central vent outlets, operates the cool air by-pass control that delivers unheated air to the vent outlets.

See also Instrument Panel Airflow Ducts and Outlets under Heating, Ventilating and Air Conditioning elsewhere in this section.

- Controls for the power mirrors on TSi and TSi AWD are located on the instrument panel to the left of the cluster. They include a spring-loaded rocker plate with directional arrows nomenclature to adjust the mirrors and a three-position slider to select the mirror to be adjusted. The plate is pressed in the direction of desired mirror movement. With the slider in the center position, inadvertent mirror adjustment is prevented.
- The hood release lever is recessed in the lower edge of the instrument panel to the left of the steering column.

### **STEERING COLUMN MOUNTED CONTROLS**

Windshield wipers are operated by the lever to the right of the steering wheel. Pulling back on the lever gives both wiper and washer action as long as the lever is held. Pushing upward, the lever moves through "off", "intermittent", "low" and "high" speed settings. Intermittent time delay is controlled by rotating the end of the lever.

Turn signals and headlights are operated by the lever to the left of the steering wheel. Pulling back on the lever, flashes the high beam headlights whether the lights are on or not. Rotating the end of the lever selects parking lights or headlights. Pushing the lever forward toggles the high beam headlights.

### **DOOR-MOUNTED CONTROLS**

Power door lock and power window switches are located in the door trim panels, forward of the armrests for easy access. They have ergonomically designed paddles for logical operation — pressing down locks the door, pulling up unlocks it; pressing down on a window paddle opens it and vice versa. The driver's window switch paddle is identifiable by a depression in its upper surface. This switch includes a one-touch down feature for added convenience. There are switches for both windows on the driver's door, but the passenger's door has only a switch for that window. A rocker-type LOCK switch on the driver's door may be used to prevent operation the passenger's power window.

Power windows can be operated normally with the ignition "on". ETACS also allows power window operation for 30 seconds after the ignition is switched "off", but such operation is terminated if a door is opened.

### **OTHER CONTROLS**

Levers for the cable-operated liftgate and fuel door release mechanisms are located on the driver's side door sill. They pivot on a common axis, the liftgate lever being longer because it requires greater leverage. Both have ISO graphic nomenclature.

## **AUDIO SYSTEMS**

### **AM-FM STEREO Radio**

An AM-FM Stereo radio with digital clock and four speakers is standard on ESi. It has the following features:

- Microprocessor controlled digital tuning
- Extended AM frequency range—530 to 1710 kHz
- AM/FM frequency band selector push button
- Dual function push-button switches  
Pressing the button momentarily selects the first function. Holding the button for 1.5 seconds or longer selects the second function.
- Six frequency memory for both AM and FM bands  
Numbered, dual function push buttons select a new frequency (Press) from memory or store the currently displayed frequency (Hold).
- A bi-directional, dual-function TUNE/SEEK rocker switch  
"Press" to increase or decrease the radio frequency to the next available frequency in the spectrum whether there is active transmission at that frequency or not. Hold to activate the SEEK function. SEEK (and also SCAN, described below) enables a traveler to find active AM

or FM frequencies easily. SEEK increases or decreases the tuner frequency and stops at the first clear incoming signal. Either process may be repeated as often as desired.

- SCAN push button  
Pressing the button increases the tuner frequency, pauses at the first clear incoming signal then increases again to the next higher frequency that has a clear incoming signal. Pressing the button during the pause stops the scanning process.
- A rotary SW (power switch)-VOL (volume) knob  
Pressing the knob toggles the radio on and off.
- Rotary front-to-rear FADER control  
The FADER control is concentric with the VOL knob.
- Rotary left-to-right BAL (balance) control
- Rotary BASS and TRE (treble) controls
- Dual function DISP (display) button  
Pressing the button toggles between clock and radio frequency displays. If the clock is displayed with the radio on, TUNE, SEEK or SCAN action switches the display to the radio frequency until tuning is complete. Holding the button followed by pressing the TUNE rocker to the "H" (hour) or "M" (minute) positions adjusts the clock.
- Amplifier automatic loudness contour  
At low volume it boosts bass output consistent with auditory response characteristics of the human ear for improved listening.
- Liquid crystal display
  - Digital frequency or clock
  - "ST" when an FM stereo signal is being received
  - "AM " or "FM" indicating the selected band
- Amber back lighting for the display, buttons and switch nomenclature  
Memory push button illumination is through the numbers on the button faces for easy access day or night.
- An amplifier rated at 15 watts for each channel—60 watts total power  
The front-to-rear FADER control works with the BAL control to efficiently adjust the gain on each amplifier to provide the desired sound level.

This system includes four speakers. For 1995, the front speakers are in the doors instead of the instrument panel. These larger speakers — 5.1 in. (130 mm) vs. a limit of about 3.9 in. (100 mm) for instrument panel speakers — are also enclosed to enhance bass response. As a result, they provide from 10 to 30 dB more volume below 250 Hz than the previous instrument panel speakers. A 6.3 in. (160 mm) dual-cone speaker is located in each rear quarter panel.

### **AM-FM STEREO Radio with CASSETTE PLAYER**

Standard on TS*i* and TS*i* AWD and optional on ES*i* is an AM-FM stereo radio with cassette player and digital clock. Features common to both radio and cassette player include the following items:

- Multiple-use push buttons  
The function of a push button changes depending on whether the radio or cassette unit are in operation. Accordingly, buttons have multiple labels.
- A rotary SW (power switch)-VOL (volume) knob  
Pressing the knob toggles the radio on and off, allowing the previous volume setting to be retained.
- Rotary front-to-rear FADER control  
The FADER control is concentric with the VOL knob.
- Rotary BAL (left-to-right balance) control  
The SW-VOL/BAL knob is pulled out and rotated to adjust side-to-side balance.
- Rotary BASS and TREB (treble) controls  
Small knobs are recessed in the face of the radio when not in use. The knobs pop up for use by pressing on their ends. After adjustment, pressing the end again returns the knob to its recessed position, avoiding inadvertent adjustment.
- SET push button  
The clock is adjusted by pressing the SET button then pressing the TUNE rocker to "H" (hour) or "M" (minute) positions.
- Amplifier automatic loudness contour  
At low volume it boosts bass output consistent with auditory response characteristics of the human ear for improved listening.
- Liquid crystal display
  - "ST" when an FM stereo signal is being received
  - "AM " or "FM" indicating the selected radio band
  - Radio frequency in Radio mode
  - Time (hours and minutes) in Time mode
  - MTL when the metal tape equalization circuit is selected in Cassette mode
  - Direction of play arrows in Cassette mode
  - Dolby® symbol when noise reduction is active in Cassette mode
- Amber back lighting for the display, buttons and switch nomenclature  
Memory push button illumination is through the numbers on the button faces for easy access day or night.
- An amplifier rated at 20 watts for each channel—80 watts total power  
The front-to-rear FADE control works with the BALANCE control to efficiently adjust the gain on each amplifier to provide the desired sound level.

The radio section includes the following features:

- Microprocessor controlled digital tuning
- Extended AM frequency range—530 to 1710 kHz
- Dual function push-button switches  
Pressing the button momentarily selects the first function. Holding the button for 1.5 seconds or longer selects the second function.

- AM/FM frequency band selector push button  
If a cassette is playing, pressing this button switches back to radio mode. In radio mode, pressing the button toggles between bands.
- Radio frequency memory for both AM and FM bands  
Six numbered, dual function push buttons select a new frequency from memory (Press) or store the currently displayed frequency (Hold).
- A bi-directional, dual-function TUNE/SEEK rocker switch  
Pressing the switch increases or decreases the tuned frequency to the next available frequency in the spectrum whether there is active transmission at that frequency or not. Holding the switch activates the SEEK function. SEEK (and also SCAN, described below) enables a traveler to find active AM or FM frequencies easily. SEEK increases or decreases the tuner frequency and stops at the first clear incoming signal. Either process may be repeated as often as desired.
- SCAN push button  
Pressing the button increases the tuner frequency, pauses at the first clear incoming signal then increases again to the next higher frequency that has a clear incoming signal. Pressing the button during the pause stops the scanning process.
- DISP (display) button  
Toggles between the clock and radio frequency displays. If the clock is displayed with the radio on, TUNE, SEEK or SCAN action switches the display to the radio frequency until tuning is complete.

Features of the cassette player are as follows:

- Microprocessor-controlled "full logic" deck
- Automatic end-of-tape reverse  
Pressing the fast forward and rewind buttons together also reverses the tape.
- Automatic Dolby B noise reduction  
Pressing the "Dolby" (#2) button toggles the noise reduction circuit.
- Fast forward and rewind buttons designated by double arrows («»)  
The tape fast forwards or rewinds and stops. Pressing either button restarts play in the direction indicated.
- Metal tape equalization  
Pressing the MTL (#1) button toggles the metal tape equalization circuit.
- "Soft" loading of cassettes
- Manual eject/"on" push button  
Push deeply to eject the tape. Push lightly to start play if the radio is on.

The system drives six speakers. Two 3.1 in. (80 mm) single-cone speakers are mounted in the outboard ends of the instrument panel. Door and rear speakers are the same as on the AM-FM stereo radio above.

## Graphic Equalizer Radio with Infinity® Speakers

An AM-FM stereo radio with graphic equalizer, cassette player, digital clock and auxiliary input is optional on TSi and TSi AWD. It includes 8 Infinity® speakers and a power amplifier. Features are operated by low-travel push buttons and rocker switches. Each mode is selected by its own push button.

The following features affect all modes:

- Multiple-use push buttons  
The function of a push button changes depending on whether the radio, cassette unit or CD player are in operation. This allows the buttons to be large for easy operation. Buttons have multiple labels showing all functions.
- Dual function push-button switches  
Pressing the button momentarily selects the first function. Holding the button for 1.5 seconds or longer selects the second function.
- An electronic tone accompanying each push button actuation
- Rotary power switch and volume control
- Variable-intensity amber lighting of display and controls
- Separate rotary (front-to-rear) FADE and BAL (side-to-side balance) speaker output controls  
Small knobs are recessed in the face of the radio when not in use. The knobs pop up for use by pressing on their ends. After adjustment, pressing the end again returns the knob to its recessed position, avoiding inadvertent adjustment.
- Seven-band graphic equalizer  
Slide controls provide  $\pm 12$  dB volume variation in each band. Frequency band center points in Hertz (Hz) are: 60, 125, 250, 500, 1000, 2500 and 10,000.
- Infinity automatic loudness circuitry  
When volume is low, bass and treble are automatically enhanced consistent with auditory response characteristics of the human ear for improved listening.
- Dual function "C" (clock) push button  
Press to toggle between clock and radio frequency displays. If the clock is displayed with the radio on, TUNE, SEEK or SCAN action switches the display to the radio frequency until tuning is complete. Hold to adjust the clock. The clock is adjusted by pressing the TUNE rocker to "H" (hour) or "M" (minute) positions.
- AUX (auxiliary) input jack on the face of the radio  
This jack allows a portable CD unit to be operated by the CD functions of the radio. It is selected by an adjacent push button.
- Liquid crystal digital display that shows:
  - Time (hours and minutes) in Time mode
  - Radio frequency in Radio mode
  - Radio band (AM, FM1 or FM2)
  - ST when a stereo radio broadcast is being received
  - MTL when a metal tape is playing in Cassette mode
  - Direction of play arrows in Cassette mode
  - Dolby symbol when noise reduction is active in Cassette mode

- Disc and Track number in CD mode
- RPT when Repeat has been selected in Cassette or CD modes
- Elapsed playing time in CD mode
- AUX when a portable CD player is active

Features of this radio include:

- Microprocessor controlled digital tuning
- Extended AM frequency range—530 to 1710 kHz
- A bi-directional, dual-function TUNE/SEEK rocker switch  
Pressing the switch increases or decreases the tuned frequency to the next available frequency in the spectrum whether there is active transmission at that frequency or not. Hold to activate the SEEK function. SEEK (and also SCAN, described below) enables a traveler to find active AM or FM frequencies easily. SEEK increases or decreases the tuner frequency and stops at the first clear incoming signal. Either process may be repeated as often as desired. If stations cannot be found during a SEEK operation, tuner sensitivity increases automatically, making it easier to find active stations.
- SCAN push button  
Pressing the button increases the tuner frequency, pauses at the first clear incoming signal then increases again to the next higher frequency that has a clear incoming signal. Pressing the button during the pause stops the scanning process.
- Automatic FM monaural or Multiplex stereo reception
- Eighteen frequency memory (6 AM and 12 FM)  
Pressing one of the six numbered push buttons selects a new frequency from memory. Holding a button stores the currently displayed frequency. Pressing of the FM band selector button toggles the buttons between FM1 (selections 1-6) and FM2 (selections 7-12).
- Auto-memory (AT-M) function  
The dual function AT-M button stores and recalls the frequencies of up to eight AM and eight FM stations that are receivable. Pressing the AT-M button selects a station from this memory. Holding the button stores the frequency of the nearest receivable station in memory.

Features of the cassette player are as follows:

- Microprocessor controlled "full logic" deck
- Automatic end-of-tape reverse  
Pressing the TAPE button also reverses the tape.
- Automatic Dolby B noise reduction  
Pressing the "Dolby"/AT-M button toggles the noise reduction circuit.
- Single selection repeat play by pressing the TAPE REPEAT button
- FF (fast forward) and REW (rewind) rocker switch
- MSS (music search)  
MSS will search for next seven or previous seven songs. MSS uses the same rocker switch as fast forward and rewind.
- Automatic metal tape equalization

- "Soft" loading of cassettes
- Low-travel EJECT push button

The radio unit provides the following controls for the dealer installed remote CD changer:

- Auto select  
Pressing the TUNE/SEEK rocker directs the changer to play CD tracks in numerical or reverse-numerical order.
- Track select  
Pressing the TRACK (#1 or #4) button selects the next higher or lower track on the disc
- Fast forward or fast reverse  
Holding the TRACK (#1 or #4) button selects the fast forward and fast reverse functions.
- Disc select  
Pressing the DISC (#2 or #5) button selects the next higher or lower disc in the changer.
- Repeat  
Pressing the REPEAT (#3) button repeats the same disc.
- Random play  
Pressing the RANDOM (#6) memory button plays the tracks on the current disc in random order.

This radio includes a six channel power amplifier mounted under the front passenger seat. Each channel is rated at 25 watts of continuous power into  $2\ \Omega$  impedance. Low distortion sound at high volume is facilitated by compression technology—output is automatically limited to prevent choppy sound.

The system includes eight speakers in six locations. The speakers have large magnets for powerful playback. They support up to 32 W of input—more than the amplifiers can produce—to provide low distortion. There are two 2.5 in. (63 mm) mid-high frequency speakers at the outboard ends of the instrument panel. In the doors, are 6.5 in. (165 mm) woofers. There is a 6 x 9 in. (152 x 229 mm) woofer mounted co-axially with a 2.5 in (63 mm) mid-high frequency speaker in each quarter panel. Each speaker has a screened grille.

### **REMOTE CD CHANGER (DEALER INSTALLED)**

A remote CD changer that is operated by the graphic equalizer radio described above is available as a dealer installed option. It holds up to 6, 12 cm discs at a time. It mounts in the cargo area behind the rear seat and includes a protective cover. Discs are loaded through a door on the front of the unit that is accessed by folding the rear seat forward. Power is supplied to the unit for loading or unloading discs with the ignition key in the "accessory" position. An LED indicates this condition. A push button on the changer opens the door and ejects the discs.

### **AM-FM STEREO RADIO WITH CASSETTE AND CD PLAYERS**

An AM-FM stereo radio with digital clock, cassette and CD players is optional on all models. Low-travel push buttons, rocker switches and rotary knobs control all functions. Features common to all functions include the following items:

- Multiple-use push buttons  
The function of a push button changes depending on whether the radio or cassette unit are in operation. Accordingly, buttons have multiple labels.
- Dual function push-button switches  
Pressing the button momentarily selects the first function. Holding the button for 1.5 seconds or longer selects the second function.
- Push-button POWER switch
- A rotary VOL (volume) BAL (left-to-right balance) knob  
The knob is rotated to adjust volume. It is pulled out and rotated to adjust side-to-side balance.
- Rotary front-to-rear FADER control  
The FADER control is concentric with the VOL knob.
- Rotary BASS and TREB (treble) controls  
Small knobs are recessed in the face of the radio when not in use. The knobs pop up for use by pressing on their ends. After adjustment, pressing the end again returns the knob to its recessed position, avoiding inadvertent adjustment.
- Dual function DISP (display) button  
Pressing the button toggles between clock and radio frequency displays. If the clock is displayed with the radio on, TUNE, SEEK or SCAN action switches the display to the radio frequency until tuning is complete. Holding the button followed by pressing the TUNE rocker to the "H" (hour) or "M" (minute) positions adjusts the clock.
- Amplifier automatic loudness contour  
At low volume it boosts bass output consistent with auditory response characteristics of the human ear for improved listening.
- Amber back lighting for the display, buttons and switch nomenclature  
Memory push button illumination is through the numbers on the button faces for easy access day or night.
- An amplifier rated at 20 watts for each channel—80 watts total power  
The front-to-rear FADER control works with the BAL control to efficiently adjust the gain on each amplifier to provide the desired sound level.
- Liquid crystal digital display with amber display that shows:
  - Time (hours and minutes) in Time mode
  - Radio frequency in Radio mode
  - Radio band (AM or FM) in Radio mode
  - ST when a stereo radio broadcast is being received
  - MTL when a metal tape is playing in Cassette mode
  - Dolby symbol when noise reduction is active in Cassette mode
  - Direction of play arrows in Cassette mode
  - Music selection number during Music Search in Cassette mode
  - RPT when Repeat has been selected in Cassette mode

The radio unit has the following features:

- Microprocessor controlled digital tuning
- Extended AM frequency range—530 to 1710 kHz
- Twelve frequency memory (6 AM and 6 FM)  
Pressing one of the six numbered push buttons selects a new frequency from memory.  
Holding a button stores the currently displayed frequency .
- Band selector  
Pressing the FM/AM button toggles the radio between bands. If a tape or CD is playing, pressing this button switches to the radio.
- A bi-directional, dual-function TUNE/SEEK rocker switch  
Pressing the switch increases or decreases the tuned frequency to the next available frequency in the spectrum whether there is active transmission at that frequency or not. Hold to activate the SEEK function. SEEK (and also SCAN, described below) enables a traveler to find active AM or FM frequencies easily. SEEK increases or decreases the tuner frequency and stops at the first clear incoming signal. Either process may be repeated as often as desired.
- SCAN push button  
Pressing the button increases the tuner frequency, pauses at the first clear incoming signal then increases again to the next higher frequency that has a clear incoming signal. Pressing the button during the pause stops the scanning process.
- Automatic FM monaural or Multiplex stereo reception
- Auto-memory (AT-M) function  
The dual function AT-M button stores the frequencies of up to eight AM and eight FM stations that are receivable. Pressing the AT-M button selects a station from this memory. Holding the button stores the frequency of the nearest receivable station in memory.

The cassette player has the following features:

- Microprocessor controlled “full logic” deck
- “Power” loading and playing of cassettes  
With a cassette inserted through the “door,” pressing the “tape” (double arrow over single arrow) button loads the cassette. Pressing again starts play. If the radio or CD is playing, pressing this button switches play to the cassette.
- Low-travel eject (^) push button
- Automatic end-of-tape reverse  
Pressing the tape button also reverses the tape.
- REW (rewind) and FF (fast forward)  
Pressing the rocker rewinds or fast forwards to the end of the tape.
- MSS (music search)  
Pressing the 1/MSS button starts music search. It will search for next seven or previous seven songs. MSS uses the same rocker switch as fast forward and rewind.
- Push-button Dolby selection  
Pushing the 3/“Dolby” button toggles the hiss-reducing Dolby circuit in Tape mode.

- Automatic metal tape equalization
- Single selection repeat play  
Pressing the 2/RPT button toggles the single selection repeat function;

The CD player has the following features:

- Plays early 3-inch (8-cm) "single" discs as well as current standard 5-inch (12 cm) discs
- Sound skip reset  
The unit is reset automatically to the previous playback position when a sound skip occurs.
- Track search rocker switch  
Pressing the switch skips to the beginning of the next or previous track.
- Fast forward or fast reverse rocker switch
- DISP (Display) button  
Pressing the button displays the total playing time of the disc and the final track number for 5 seconds then reverts to the current display.
- RPT (repeat) rocker switch  
Repeatedly pressing the button cycles the playing mode among repeating the current track, playing all tracks, or playing to the end from the current track.
- SCAN push button  
Pressing the button plays the initial 10 seconds of each track then skips to the next. Pressing the button during play stops the scanning process.
- RNDM (random) push button  
Pressing the button plays the tracks in random (rather than numerical) order.
- Dual-function "play" push button  
Play starts by inserting the disc if the radio is off or by pressing the play button if it or the cassette are playing. Holding the play button restarts play from the first track.
- Eject push button  
The disc can be ejected even with the ignition key "off". The disc extends about half its diameter for easy removal.
- Liquid crystal digital display that shows:
  - Current elapsed playing time in minutes and seconds
  - Current track number

This system has six speakers. Two 3.1 in. (80 mm) single-cone speakers are mounted in the outboard ends of the instrument panel. In the doors, are 6.3 in. (160 mm) dual-cone speakers. A 6x9 in. (152x229 mm) dual-cone speaker is located in each rear quarter panel.

#### **ANTENNA**

All radios have a black fixed-mast antenna mounted on the left rear quarter panel.

## SEATING

### SEAT FABRICS

ESi seats have seating surface fabric of "Forest" cloth — a checked velour — with vinyl facings, as well as "Serein" velour bolsters. TSi and TSi AWD seats have "Serein" velour bolsters with "Pulsar" striped velour inserts that have a bias pattern with vertical stripes. Leather seats with vinyl facings and matching vinyl door trim are optional on TSi and TSi AWD.

### FRONT SEATS

Ergonomically designed bucket front seats with urethane foam padding are standard. To help reduce fatigue on long drives, the frame provides "center of gravity" support. A support plate in the cushion frame matching the contour of the buttocks supports the hipbones on which the lower-body center of gravity rests. A support plate in the back frame supports the thoracic vertebrae on which the upper-body center of gravity rests. Springs provide support for the remaining areas of the cushion and back. Lower surfaces of the urethane foam pads are arched — thicker over the support plates and thinner over the springs to absorb shock and effectively disperse body pressure.

The driver's seat on all models has five adjustments that provide comfortable accommodation for 90% of the adult population. Adjustment levers are concentrated on the outboard side of the seat for convenience and easy operation while maintaining normal driving posture. The following adjustments are provided:

- Front and rear cushion height  
Rotary knobs at the front and rear of the cushion side shield each provide a continuously variable vertical adjustment with a range of 1.2 in. (30 mm).
- Seat track  
Seat track travel is 9.4 in. (240 mm) in 0.4 in. (10 mm) increments. The latch release lever is on the cushion side shield.
- Recliner with memory  
The recliner has a range of 48° in 2° increments. Its release lever, which has molded graphic nomenclature, is on the cushion side shield at the base of the back. The recliner has a memory feature that allows the back to be returned exactly to a memorized position after folding for access to the rear seat or reclining further. The basic recliner has a conventional gear sector and pawl mechanism. The memory mechanism includes a pair of spring loaded arms that rotate about the pivot axis of the gear sector and a Memory Lock lever. The lever is labeled MEMORY and has an arrow to indicate its direction of movement. The rotating arms are concealed by the side shield. The selector lever is exposed at the top of the side shield for use by the driver. To memorize a recliner position, the driver first selects it using the recliner lever. Then the knob on the Memory Lock lever is pressed and released, allowing the spring loaded arms to find and "memorize" the selected position. A projection on one of the rotating arms covers the gear sector teeth "forward" of the memorized position. If the back is tilted forward even slightly from the memorized position, the pawl is prevented from engaging the sector teeth and the recliner will not lock. If the back is tilted backward past the memorized position, the recliner will lock but the memory remains. To restore the recliner to the memorized position, the recliner lever is lifted and the back is allowed to tilt forward. The recliner lever is then released and the seat pushed back. At the point where the sector teeth are exposed (the memorized position), the recliner locks automatically. The memory range is less than the recliner range as the remaining portion is unsuitable for driving.

- Head restraint height

The twin-post head restraint has three positions with a total range of 2.4 in. (60 mm). It may be raised by direct upward pressure. To lower it, squeeze a latch on the outboard post.

TSi and TSi AWD also have two additional adjustments for added comfort:

- Lumbar support

A rotary knob on the inboard side of the seat back adjusts the four-position lumbar support.

- Back wing supports

Back wings are continuously adjustable through a 30° range using a rotary knob concentric with the lumbar support knob.

A power driver's seat is optional on TSi and TSi AWD. It powers the most frequently used adjustments: seat track and cushion height. An ergonomically designed paddle on the outboard side of the seat side shield operates switches that control the powered functions. Each function has a separate motor, allowing simultaneous adjustment of all functions. Seat movement corresponds with paddle movement — vertical, horizontal or tilt. Vertical adjustments may be made in unison, alone or in simultaneous opposition.

The following passenger seat adjustments are provided:

- Seat track

The passenger seat track has a "walk in" feature. When the seat back is folded forward for access to the rear seat, the track latch is released and the seat slides all the way forward. Seat track travel and release lever location are the same as the driver.

- Recliner

Recliner range and handle location are the same as the driver's seat. However, there is no memory feature.

- Head restraint height

Head restraint height adjustment is the same as the driver's seat.

## REAR SEAT

The rear seat has a two person bucket-style cushion with a folding back for convenience in carrying cargo. On ESi the back folds as a unit with a single latch-release lever at the top of the back on the curb side of the car. For added convenience on TSi and TSi AWD, the back is divided in half with a latch-release lever at the outboard end of each section. When folded, the back is flush with the cargo floor.

## INTERIOR TRIM

Two fully color coordinated interior colors are available: two-tone gray—molded parts darker and fabrics lighter—and brownstone—molded parts are brown and fabrics are sandstone.

### CENTER CONSOLE

The center console is an extension of the instrument panel. It houses the radio which is turned toward the driver and tilted upward for easy visibility and operation. A storage box at the rear of the console has a padded lid with latch. The lid has a check arm to hold the cover in the full-open position. The under side of the lid has a snap-on cover useful for storing important papers. A removable cup holder with finger depressions is stored inside the console box. The interior of the console box is flocked. There is a cup holder and an ash tray, both with retractable hinged covers, between the console box and the transaxle shifter. A push-button cigarette lighter with ISO graphic nomenclature is forward of the transaxle shifter.

### HARD TRIM

All fixed body interior sheet metal parts—pillars, sills, quarter panels and cowl sides—have molded, color-keyed covers. A molded assist handle is mounted on the curb side windshield pillar. Two coat hooks are installed in the rear seat area. The quarter trim panels are sculptured for added elbow room.

### DOOR TRIM PANELS

Door trim panels are molded in an asymmetrical organic form that blends into the instrument panel and includes an armrest recess. All door trim panels include pull cups located near the longitudinal center of the door for best access and operation. ESi door trim panels have a molded surface. TSi and TSi AWD trim panels have padded upper and lower surfaces and larger armrests. Bolsters above the armrests match the seat inserts. TSi and TSi AWD also have door map pockets beneath the arm rests.

### SOFT TRIM

Interior soft trim features include the following items:

- Fabric covered sun visors with covered mirrors are standard on ESi. Illuminated covered mirrors are standard on TSi and TSi AWD.
- The napped, knit fabric headliner is padded.
- A rear shelf panel is standard on TSi and TSi AWD. It pivots at the front and has lift cords at each side that raise the rear of the panel for access to cargo when the liftgate is opened. The shelf panel may also be removed to carry bulky items.
- Molded, one-piece cut pile carpeting with molded driver's left foot rest is standard.
- Carpeted front floor mats are optional on all models.
- Base series trunks have a one-piece carpet attached to the spare tire cover. Highline and Sport series trunks have a molded one-piece carpet for the folding seat backs, sides, floor and spare tire well. The spare tire is carpeted separately. Trunk carpet color is gray.

### CARGO AREA TRIM

The cargo area has molded trim on back, sides and interior of the lift gate. An open storage box is created in the curb side rear corner of the cargo area by a removable panel. The panel hooks into the cargo trim at the rear and has a rotary latch at the front. One piece needle punch carpeting extends up the back of the rear seats.

## CARGO NET

A cargo net is optional on ESi and standard on the other models. It can be installed in three different positions to improve use of the available space and keep objects from sliding or rolling about. The rectangular net has loops at each corner. Six attaching hooks are located on the cargo area trim panels: two at floor level near the fore-and-aft midpoint of the area, two directly above them at the top of the area and two in the rear outboard corners. The following mounting positions and uses are possible:

- Folded like an envelope and suspended from the rear hooks to hold small objects
- Stretched diagonally from the top rear hooks to the floor hooks to keep grocery and shopping bags in place
- Stretched vertically from upper side hooks to the floor to separate luggage or restrain relatively large items.

## INTERIOR LIGHTING

Dual, header-mounted map/reading lamps are standard on all models. They are controlled by an integral three-position switch (off, on and door). With optional sunroof, these lamps are replaced by dual map/reading lamps in the base of the rear view mirror. Each mirror lamp has its own rocker switch. Dual floor lamps that illuminate the front footwell area are standard on TSi and TSi AWD. Floor lamps, mirror lamps and the header-mounted lamps (with the switch in the door position) are also operated by the door switches. Ash receiver, cigar lighter and glove compartment lamps are all standard. A lamp in the left trim panel of the cargo area is operated by a switch that senses liftgate opening.



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## CHASSIS

### BRAKING SYSTEMS

#### SYSTEMS Availability

Power assisted, four-wheel disc brakes are standard on all models.

#### ESi & TSi BRAKE SYSTEM

Brake system effectiveness and progressive pedal feel — deceleration proportional to pedal effort — are improved from 1994 through the use of more powerful boosters, redesigned pedal linkage, a larger diameter master cylinder and larger calipers. The 9 in. (230 mm) single diaphragm booster provides a 20% gain in actuation force for the same pedal force, while the pedal lever ratio is reduced 10% to lower pedal deflection for a firmer feel. The 0.94 in. (24 mm) master cylinder (19% larger) applies pressure through 2.38 in. (60 mm) sliding front calipers (23% larger) and 1.38 in. (35 mm) sliding rear calipers (36% larger). Front brakes rotors, which carry over from 1994, are 0.94 in. (24 mm) thick and have an effective diameter of 8 in. (204 mm). Rear rotors, which also carry over, are 0.4 in. (10 mm) thick with an effective diameter of 8.7 in. (222 mm).

The master cylinder reservoir includes a sensor that alerts the driver of low fluid level by means of a light in the instrument cluster. Proportioning valves provide proper balance between front and rear brakes. Dual hydraulic systems are split diagonally to provide stopping ability in the unlikely event that one system loses pressure.

#### TSi AWD BRAKE SYSTEM

Like ESi and TSi, TSi AWD brake system effectiveness and pedal feel are improved from 1994 through the use of a more powerful booster, redesigned pedal linkage and larger calipers. As in 1994, TSi AWD brake are larger and provide greater stopping ability than the other models because of the greater performance expectations for customers of this model. A tandem booster with 7.0 and 8.0-in. (180 and 205-mm) diaphragms provides a 8% gain in actuation force for the same pedal force, while the pedal lever ratio is reduced to lower pedal deflection. In a tandem booster the forces generated by the two diaphragms are added, providing the necessary force in a lighter, more compact package than a single diaphragm of similar force. Dual piston sliding front calipers have 1.69-in. (43-mm) bores — 10% larger, while single piston rear calipers, at 1.5 in. (38 mm), are 18% larger. Front brakes rotors, which carry over from 1994, are 0.94 in. (24 mm) thick and have an effective diameter of 9 in. (228 mm). Larger rear rotors are also vented for greater heat dissipation. They have an effective diameter of 9.3 in. (237 mm), up 0.75 in. (19 mm) from 1994. Their thickness is increased 0.3 in. (8 mm) to 0.7 in. (18 mm) to provide for venting.

#### Anti-Lock BRAKE SYSTEM

ABS is optional on all models. With ABS, wheel brakes have the same specifications as the standard system. It detects incipient brake lock up caused by heavy braking or braking on a slippery surface and modulated brake pressure to prevent skids. Under these conditions, it reduces stopping distance, maintains directional stability and allows the car to be steered. When ABS action is not required, pedal feel and stopping ability are the same as without ABS. ABS control begins above 5 mph (8 km/hr) and is cut off below 2 mph (3 km/hr).

Magnetic sensors at each wheel are used to measure wheel speed variations. For reliability, sensor alignment and clearance requires no adjustment. A hydraulic unit (HU) is attached to the left fender side shield in the engine compartment through rubber isolators the reduce NVH. It contains solenoid valves, a hydraulic pump and a fluid reservoir. The solenoids each have three positions to hold, reduce or increase hydraulic pressure to the wheel cylinders under control of the brake control module (BCM). The pump

generates hydraulic pressure required for control and the reservoir collects brake fluid returned from the wheel cylinders during ABS action. On FWD models, each front wheel is independently controlled and rear wheels are controlled in unison. Thus if one rear wheel begins to lock, the BCM signals pressure modulation at both wheels until the lock up condition is removed. Uniform rear wheel hydraulic pressure reduction is achieved by using a pressure-balancing plunger valve in the HU.

On AWD models, the interconnection of the front and rear wheels through the viscous-coupled center differential requires a different ABS control strategy. The system has only two channels (two hydraulic pressure systems) but adds a vehicle deceleration sensor. To determine the need for anti-lock action, the BCM constantly compares the deceleration rates of both wheels on each side of the car. If incipient lock-up is indicated at any wheel, hydraulic pressure modulation begins at both wheels on that side. As in the case of the FWD system, hydraulic pressure between the rear wheels is kept uniform by a pressure-balancing valve in the HU. Thus, incipient lock-up will reduce hydraulic pressure to three wheels simultaneously.

Also with AWD, all four wheels may decelerate almost in phase, especially when traction is poor. When this occurs, the vehicle speed suspected by the BCM suggests a high friction road surface and ABS control is not reliable. To distinguish between low and high-friction surfaces, the AWD ABS system has a vehicle deceleration sensor ("G" sensor). When the rate of wheel deceleration is high but vehicle deceleration is low, the BCM changes the method of calculating the suspected vehicle speed.

The deceleration sensor is a semiconductor strain gauge mounted inside the forward portion of the center console. It consists of a weight attached to the free end of a wafer of N-type semi-conductor silicon. The wafer is oriented longitudinally in the car. Acceleration (or deceleration) acting on the weight cause the wafer to deflect. The wafer is sealed in a case filled with damping oil to prevent false readings due to resonance. On the surface of the silicon wafer are four segments of P-type piezo-electric resistance material. Two of the segments are oriented transversely and two longitudinally. The ends of the segments are connected electrically to form a "bridge" circuit. A voltage is applied at two of the terminals and the output voltage is monitored. At rest, the resistance of all segments is the same and the bridge is in "balance". When the wafer deflects, the segments are distorted and the piezo-electric effect changes their resistance, unbalancing the bridge. This changes the output voltage in direct proportion to the rate of acceleration.

The BCM is operated by dual microprocessors that monitor each other for possible failures to assure reliable operation. It includes sensor interface circuits and control circuits for the pump motor, solenoid valves and the warning lamp. The microprocessors are programmed to recognize the difference between normal deceleration and incipient wheel lock-up and commences anti-lock action when required. In the event of a malfunction, onboard diagnostics that will store fault codes in memory for access by a scan tool. The diagnostic routines can also test the control module and the hydraulic control unit as directed through the scan tool. ABS diagnostics are accessed through the central data link connector under the instrument panel. An ABS warning lamp in the instrument cluster blinks four times as a test of the light bulb each time the ignition is turned on and again when the key is turned to "start". When a malfunction occurs, the light is illuminated and remains on.

With ABS the master cylinder includes a center valve to reduce brake system pulsation during anti-lock action. Also, the master cylinder reservoir includes a filter to keep foreign matter from entering the brake system while adding brake fluid. To balance the hydraulic pressure from the ABS pump, ESi and TSi ABS systems use the same 7.0 and 8.0-in. (180 and 205-mm) tandem booster as the standard TSi AWD system. The TSi ABS system uses a larger tandem booster with 8.0 and 9.0-in. (205 and 230-mm) diaphragms.

## **Parking Brake**

The parking brake lever is located on the right (passenger) side of the console to prevent the lever from bumping the driver's knee. The lever has a conventional ratchet take-up mechanism with a push-button release. Sealed cables operate drum-type parking brakes inside the rear brake discs. Having parking brakes separate from the service brakes requires no compromise in lining material for either function.

## **STEERING AND SUSPENSION**

### **STEERING**

An all new power-assisted rack and pinion steering is standard on all models. It has a lower ratio than the previous model — 14.6 vs. 15.8 — for faster response. As on the previous model, the pump flow control system senses engine speed, providing high assist for easy parking and low speed driving and low assist for a firm, responsive feel at highway speeds. On TSi AWD, the high speed assist is less than on the others. One-piece ball joints connect the gear to the tie rods for greater steering precision than the previous three-piece joints. The steering gear is solidly mounted on the front suspension cross member, also for greater precision than the previous rubber-mounting. Rubber isolation of the cross member provides NVH isolation for the gear. To enhance reliability, the return line from the gear to the reservoir is routed in front of the radiator to cool the fluid. This all-new gear also has dual oil seals for reliability.

### **FRONT SUSPENSION**

An all-new multi-link front suspension provides a superior balance between handling stability and ride comfort. This suspension is an improvement on both MacPherson strut and SLA (short and long arm) systems. It is similar to an SLA system, but better. Like both strut and SLA systems, the wheel hub mounts in a one-piece knuckle. Like SLA systems, the upper end of the knuckle is curved to clear the tire and pivots on an upper wishbone arm through a ball joint above the tire. Unlike the other systems, multi-link front suspension has two lower control arms each connected to the knuckle through its own ball joint located within the envelope of the wheel. Pivot points within the wheel envelope contribute to the desired suspension geometry and allow for adequate ground clearance.

Cornering stability is increased by a wider track — 59.4 in. (1510 mm), an increase of 2.36 in. (60 mm) on FWD models and 2.12 in. (54 mm) with AWD model — than the previous Talon.

The control arm inboard pivots have rubber bushings to help isolate the passenger compartment from noise, vibration and harshness. The stamped upper arm attaches to the body structure. The front lower arm is transverse and has a firm bushing to control lateral deflection of the suspension for responsive handling. The rear lower arm is angled backward and has a larger, softer bushing to provide cushioning against harshness. Both lower control arms attach to a rubber-isolated cross member to further reduce NVH. A center member, which stabilizes the suspension cross member, extends forward beneath the engine and attaches to the front cross member of the body structure through two rubber mounts. The body structure has been stiffened at the cross member attachment points, allowing the rubber isolators to be more effective.

A shock absorber with concentric coil spring is connected to the front lower control arm through a forked extension that pivots on the forward lower control arm inboard of the ball joint for tire clearance. The upper end of the spring and shock assembly attaches to the body structure as a MacPherson strut would. Unlike a strut, this coil-shock unit does not introduce a bending moment into the system, thereby reducing friction for improved ride quality. High strength steel is used in the springs to reduce weight. Shock absorber travel is increased 0.04 in. (10 mm) compared to the previous Talon for a smoother ride. Shock absorbers provide low velocity damping for control of ride motions without excessive stiffness or harshness. A stabilizer bar is connected to the forked extension at the base of each shock absorber

through a ball-jointed link that provides immediate response and low friction. Bar reaction forces are taken by the rubber isolated cross member to reduce NVH.

See also Multi-Link Suspension Advantages, below.

## **REAR SUSPENSION**

An all-new multi-link rear suspension is used on both FWD and AWD models. It offers benefits similar to those provided by the multi-link front suspension.

This suspension is an improvement on the previous Talon multi-link suspension. The wheel hub mounts in a one-piece knuckle that is curved for tire clearance and to permit an upper attachment above the tire. The top of the knuckle is located by an upper wishbone arm. A lower arm provides lateral location for the base of the knuckle and a diagonally mounted trailing arm longitudinal location. A toe-control link located aft of the wheel center, where a steering tie rod would be on a front suspension system, connects to a rearward extension of the knuckle. The two lower control arms each attach to the knuckle within the envelope of the wheel. This contributes to the desired suspension geometry and allows for adequate ground clearance.

Suspension geometry causes the outboard wheel to toe in during cornering, providing passive understeer that enhances stability. Lateral compliance, primarily of the trailing arm bushing, increases this effect. Directional stability is maintained during braking or when traversing bumps because the design of the linkage and rigidity of the bushings provides toe in.

Cornering stability is increased by a wider track — 59.4 in. (1510 mm), an increase of 2.36 in. (60 mm) on FWD models and 2.12 in. (54 mm) with AWD model — than the previous Talon.

The control arm fixed pivots have rubber bushings to help isolate the passenger compartment from noise, vibration and harshness. The upper wishbone arm attaches to the body structure. The lower arm is transverse and has a firm bushing to control lateral deflection of the suspension for responsive handling. The trailing has a larger, softer bushing to provide cushioning against harshness. Lower control arms, trailing arms and toe control links attach to a cross member that is isolated from the body structure by four rubber mounts to further reduce NVH. The body structure has been stiffened at the cross member attachment points, allowing the rubber isolators to be more effective. On the AWD model, the rear differential is attached to this cross member by three rubber isolated mounts.

A shock absorber with concentric coil spring is connected to the knuckle. The upper end of the spring and shock assembly attaches to the body structure as a strut would. Unlike a strut, this coil-shock unit does not introduce a bending moment into the system, thereby reducing friction for improved ride quality. High strength steel is used in the springs to reduce weight. Suspension travel is increased compared to the previous Talon for a smoother ride. With TSi and TSi AWD, a stabilizer bar is connected to the lower control arm through a ball-jointed link that provides immediate response and low friction. Bar reaction forces are taken by the rubber isolated cross member to reduce NVH.

See also Multi-Link Suspension Advantages, below.

## **Multi-Link Suspension Advantages**

Axes of the front suspension lower control arms intersect at a point outboard of their pivot points. The pivot point on the upper arm is above the tire. Therefore, the pivot axis of the knuckle is not directly about the pivot points as in a conventional SLA system, but about a virtual axis between the intersection of the lower control arm axes and the upper control arm pivot. This axis is nearly vertical and the lower (virtual) pivot point is farther outboard than an actual pivot can be because the brake disc occupies that space. This principle also applies to the rear suspension even though the rear wheels are not steered.

C H A S S I S

Chief advantage of this system is that negative offset geometry (having the pivot axis intersect the ground outboard of the center of the tire contact patch), which is essential in for directional stability when accelerating and braking on road surfaces with dissimilar coefficients of friction at each front wheel, is achieved with less reaction at the steering wheel to drive and braking torque variations and impact bumps. The reduction of steering wheel reaction comes from the fact that the moment arm between the virtual axis and plane of the wheel at the center of the wheel, where torque is applied, is only 1/3 that of the previous strut system and about 1/2 that of double-wishbone systems. Bringing the steering axis closer to the plane of the wheel also allows the use of more front suspension caster than the previous Talon suspension — 4°40' vs. 2°30' — for good returnability and directional stability, without excessive steering effort.

With multi-link suspension as with an SLA system, ride and handling motion produces more negative camber during bump motion than a strut system. This improves cornering performance by keeping the outside tire more nearly perpendicular to the road when the body rolls. The larger caster angle and smaller kingpin angle of the multi-link system also produce additional negative camber at the outside tire when the wheels are steered.

Having a long knuckle with the upper control arm above the tire, provides a successful compromise between ride comfort and outstanding directional stability. Forces acting on the suspension to change the camber of the wheel are resisted by the upper and lower control arm bushings. Firmer bushings increase this resistance but introduce friction that adversely affects ride quality. Widely spaced arms, provided by the high mounted upper control arm, permit the use of softer bushings than a system with a low-mounted arm while maintaining excellent camber control.

Front suspension control arm “planes” are angled to reduce brake “dive” — dipping of the front when the brakes are applied. With AWD the rear suspension control arm planes are angled to maintain a level stance during acceleration — without lift or squat.

### **Shock Absorbers**

On TSi and TSi AWD, shock absorbers provide low velocity damping for firm control of roll and low-speed ride motions without excessive stiffness or harshness on large bumps. A spring-loaded relief valve, operating in parallel with the conventional fixed orifices, provides more resistance to low-speed movements than the orifice alone but releases when sharp bumps are encountered.

### **Suspension Calibrations**

Each model — ESi, TSi and TSi AWD — has a unique suspension calibration, tuned to the customer expectations and performance potential of each. ESi provides a stable, controlled ride. TSi provides additional control through front shock absorbers that are 11% firmer in jounce and 13% firmer in rebound than ESi. The TSi AWD front suspension has 8% higher rate springs and shock absorbers that are 27% firmer in jounce and 16% firmer in rebound than the ESi calibration. TSi AWD rear springs have a 7.5% higher rate than the others. TSi and TSi AWD shock absorbers also have low-speed damping control as described above.

### **Hub Bearings**

Front and rear hubs have unit bearings that have less friction than the former multi-piece bearing and seal system. The unit bearing is also more effective at preventing brake knock-back when cornering because it is more rigid than previous designs in which the outer race of the bearing was pressed into the knuckle. The unit bearing integrates the inner and outer races of a double-row ball bearing and the lubricant seals. The precision assembly of the unit bearing increases reliability through superior protection against contamination.

## **Tires, Wheels and Jack**

High-speed rated P215/55VR16 all-season performance Goodyear Eagle RSA tires, one size larger than maximum available on the previous Talon, improve cornering of AWD models with manual transaxle only. TSi and TSi AWD with automatic transaxle have P205/55VR16 all-season performance Goodyear Eagle RSA tires as used in 1994. Eagle RSA all-season-performance tires have an asymmetrical tread design with high lateral stiffness in the outer half and a low profile for high cornering traction. The inner half of the tread design is open to provide snow and wet weather traction and a comfortable ride. Curved tread pitch boundaries minimize tread noise and lateral "S" grooves channel water away for traction on wet roads. ESi has P195/70HR14 speed-rated tires mounted on 14x5.5 in. stamped steel rims. TSi and TSi AWD have 16x6.0 in. cast aluminum wheels. With white exterior paint they are painted white. With all other exterior colors they are painted "Light Silver Star". Mini-spare tires are standard on all models; T125/70D15 on ESi and TSi with standard brakes or T125/80D16 with optional ABS. TSi AWD has a T125/90D16 spare.

## **Wheel Dress-Up**

ESi has full wheel covers. Eagle emblems with blackout paint treatment are formed into the wheel covers and aluminum wheel center caps.

## **ENGINE FUEL, EXHAUST AND COOLING SYSTEMS**

### **Fuel Supply System**

The fuel tank is mounted under the rear seat floor for protection in a rear impact. Fuel tank capacity is 15.85 gal. (60 L) on all models. A cut-off valve at the top of the tank prevents fuel from flowing out if the vehicle rolls over. FWD models have steel tanks. With AWD, a saddle-type tank of molded high-density polyethylene straddles the propeller shaft and exhaust system. Because the molded AWD tank fills more of the available space than a steel tank, it can be placed under the seat in spite of the intruding components. The previous AWD Talon had the tank under the cargo floor, reducing the cargo volume. The molded tank is also 20% lighter than a comparably sized steel tank. The inner walls of the molded tank are fluorine gas-treated to prevent fuel vapor permeation. A protector shield is attached to the bottom of the AWD tank.

A compact electric pump is mounted near the forward right corner of the fuel tank on all models. With AWD, a portion of the fuel is not directly accessible by the pump because of the saddle in the middle of the tank. To access this fuel, a pickup tube is routed across the saddle and connected to a jet pump on the electric pump module. Excess fuel returning from the engine flows through a nozzle in the jet pump, creating a low pressure area to which the pickup tube is connected. The low pressure siphons fuel into the pump side of the tank.

FWD models have a fuel gauge sending unit in the center of the tank. With AWD, two gauge units are used. One is combined with the pump. The second is connected to the pickup tube on the opposite side of the tank. The sending unit readings are averaged to provide an accurate overall fuel level indication. Fuel lines are rubber isolated to reduce pulsation noise in the passenger compartment. The fuel filler cap is located in the right quarter panel behind a latched door with a cable-operated remote release. The filler cap is tethered.

### **Exhaust System**

Exhaust system flow restriction is reduced approximately 10% compared to the previous Talon, resulting in a 1-2% increase in power output. Exhaust sound is kept sporty but not loud by increasing muffler volume 33% and pre-muffler volume 73%. With turbocharged engine, the system also includes a sub muffler. All pipes are 2.12 in. (54 mm) in diameter for low restriction. On TSi and TSi AWD, the muffler has dual 1.9 in. 48.6 mm) outlets with 2.9 in. (74 mm) polished stainless steel tips. The single 2.12 in. (54 mm)

ESi muffler outlet has more area than competitive single or dual-outlet systems. FWD exhaust system vibration is reduced compared to the previous Talon by adding an additional rubber-isolated hanger adjacent to the catalytic converter housing. Idle and low frequency vibrations are reduced on all models by adding a bellows to the exhaust pipe forward of the catalytic converter. All components except hanger brackets are stainless steel for durability.

### **Cooling System**

New radiators are smaller and lighter than those on the previous Talon. Weight reduction is achieved through use of aluminum cores for all powertrains except the naturally aspirated engine with manual transmission, which has a copper core. Core tubes are thinner and deeper, resulting in a 10% increase in cooling efficiency. Greater efficiency lowers weight by reducing the amount of coolant required by the system and by allowing a 0.2 in.(5 mm) reduction in thickness of the aluminum cores compared to their copper predecessors. With automatic transaxle the oil cooler in the bottom tank is lighter and less bulky, lowering the radiator by 0.40 in. (10 mm). In spite of smaller size, cooling efficiency has been increased by redesigning its internal fins. All radiator cores have corrugated-fin and tube construction with a vertical flow pattern. Tanks are molded plastic.

A molded plastic radiator fan includes a shroud to increase cooling efficiency. With air conditioning, a condenser fan with shroud is installed next to the radiator fan. Both fans are driven by electric motors. For increased cooling efficiency, lower noise, better fuel economy and more rapid acceleration, each fan can operate at two speeds depending on operating conditions. The PCM/ECM uses coolant temperature, vehicle speed and air conditioning operation to determine the appropriate speed for each fan. At very high temperatures, the PCM/ECM can also turn the air conditioning compressor off.

See also Cooling System for both engines under Engine Systems in the Powertrain section.

## **NOISE, VIBRATION AND HARSHNESS CONTROL**

### **POWERTRAIN**

#### **ENGINE MOUNTS**

Four elastomeric mounts are used to isolate the passengers from engine vibrations and control engine torque reaction. Mounts at opposite ends of the powertrain assembly provide isolation from vertical shaking forces but are close to torque roll axis of the assembly to minimize their effect on torsional vibrations. Dual mounts damp engine torsional vibrations and control engine torque reaction. To improve performance of these mounts compared to the previous Talon, mounting bracket are more compact and attached farther from center of the powertrain — on the transmission case instead of the engine block — to help raise their resonant frequency above that of engine-induced vibrations. Each mount cushion has internal voids to tune its damping rate for the desired isolation properties. Cast aluminum housings add stiffness compared with the previous stamped steel parts to avoid resonance.

#### **Clutch Damper**

To reduce driveline vibration transmitted to the clutch pedal, an expansion chamber is installed in the hydraulic line between the clutch slave and master cylinders.

#### **Powerplant Bending Stiffness**

On the naturally aspirated engine, struts installed between the transaxle bell housing and the engine block increase overall powerplant bending stiffness in both vertical and lateral modes. On the turbocharger engine, the block to transaxle case attachment has been stiffened by adding an additional bolt. These refinements eliminates noise and vibration by raising the natural frequency of the powerplant assembly above that of the primary exciting forces in the engine.

#### **AUTOMATIC TRANSAXLE GEARING**

Gear mesh on the F4A33 and W4A33 automatic transaxles was changed to reduce gear noise.

Support brackets for the cable shifter used with the F4A33 and W4A33 automatic transaxles are modified to reduces the transmission of gear noise to the passenger compartment.

#### **Axle Shaft Dampers**

A dynamic damper is mounted on the "shorter" front axle drive shaft on all models.

#### **Air Cleaner Resonator**

The naturally aspirated engine includes an air cleaner side-branch resonator that reduces induction noise around 2200-2400 rpm — the range where automatic torque converter lockup occurs in city traffic. The resonator has a tuned volume of 107 in<sup>3</sup> (1.75 L). It is ported to the engine in parallel with the direct air supply to the air cleaner through an opening in the primary inlet duct.

## ADDITIONAL NOISE REDUCTION DEVICES

The following applied treatments are used to reduce passenger compartment NVH on all models as indicated:

- Fiber pad floor pan insulator
- Felt-backed molded dash panel insulator
- Foam pad dash liner
- Asphalt sheet dash panel and cowl side silencers
- Asphalt sheet front center tunnel silencer
- Asphalt sheet front and rear foot well silencers
- Asphalt sheet floor pan silencer under rear seat and over rear suspension crossmember
- Asphalt sheet silencer on front and rear of rear wheel houses
- Deadening pads on the cowl top cross member and the outer ends of the cowl plenum chamber
- Silencer pads on the quarter inner panels
- Fiber pad cargo floor insulator

In addition, both TSi models have an asphalt sheet tire well silencer and TSi AWD has asphalt sheet trunk side silencers.

## SAFETY AND SECURITY

### OCCUPANT PROTECTION SYSTEMS

#### DRIVER AND PASSENGER Air BAGS

A driver air bag module of conventional design and construction is mounted on the steering wheel frame. A passenger air bag module is mounted in the instrument panel above the glove compartment. The air bags are fully effective only when the active belt system is worn. Both systems have pyrotechnic inflators. The passenger air bag module is concealed by a urethane cover molded over sheet aluminum. The molded urethane forms a living hinge. Molded latches at the base of the door rupture during deployment, allowing the door to swing up. An SRS (Supplemental Restraint System) logo is molded into the outer surface of the air bag door. The air bag module, a steel housing containing the air bag and inflator, is attached to structural supports under the instrument panel.

#### AIR BAG ELECTRONIC CONTROLS

The system is triggered by the simultaneous detection of an impact by either of two forward mounted sensors and by a safing sensor in the passenger compartment. Air bag deployment is controlled by an electronic control module (ECM) located under the center console. The ECM capacitors that will operate each inflator if battery power is lost at the onset of an impact. The capacitors store sufficient electrical energy when the ignition is "on" to initiate deployment. The ECM also houses the safing sensor.

The ECM provides on-board diagnostics to help detect and analyze system malfunctions. It also operates the SRS light in the instrument cluster as a test each time the ignition is turned on and whenever a malfunction is detected. The SRS lamp has two bulbs to reduce the possibility that a malfunction might be not be detected. The ECM maintains constant surveillance on all electrical component in the system and records in memory a fault code for each one that malfunctions.

All electrical connections are gold plated for highest possible reliability and all wiring connectors have a special locking feature to assure continuity.

#### ACTIVE RESTRAINT SYSTEM

Self-adjusting, low-tension three point **Unibelt active restraints** are provided at each seating position. The active restraint system includes a red ISO graphic reminder on the instrument panel that flashes for six seconds when the ignition is turned on.

Outboard front seat Unibelts have **vertically adjustable shoulder belt anchors**. A comfortable shoulder belt position is more assured with the adjustment feature than with a fixed anchor. There are five anchor positions spaced 1.0 in. (25 mm) apart. The adjuster slides in a track on the door lock pillar concealed by a sliding cover. A spring-loaded lock pin secures the turning loop to holes in the track. A push button on the side of the anchor retracts the pin for adjustment. Upward movement does not require the use of the push button, however.

**Front buckles are attached to the seat frame** rather than the floor. This assures that the buckles are easy to find because they always have the same relation to the cushion, regardless of seat adjustment. This also minimizes possible occupant discomfort associated with adjusting the seat with the belt on. For easy belt release, the entire **end of each buckle is the release button**. The belts are also easy to put on because the concave shape of the release button guides the latch plate into its slot. Buckling effort is low and operation is smooth. Each buckle is attached to its support by a spring-loaded swivel that allows the buckle to bend inward and swivel vertically for alignment with the body of the wearer.

**Low tension retractors** without tension relievers combine comfort with the assurance that the belts are properly positioned when needed. The retractors lock as the result of impact or extremely hard braking

(emergency locking). Otherwise they allow body movement. An added feature of the **passenger-side and rear retractors** allows them to **retain a child seat**. When the webbing is pulled out to the end of its travel, the locking mechanism switches from emergency locking to automatic locking. When the belt is retracted around the child seat, it locks immediately to hold the seat snugly. When the belt is fully retracted, the emergency locking feature is restored. Each Unibelt assembly includes a **free-falling latch plate**. A molded button on the webbing stops the latch plate at a convenient location.

### ENERGY-ABSORBING STEERING COLUMN

A three-stage energy absorbing steering column works with the air bag to cushion the driver in a frontal impact. The two-piece lower shaft features polyacetal resin shear rings that fracture under a heavy load, allowing the shaft to collapse. This helps keep the column from intruding on the passenger compartment. Molded polyacetal resin clips at the upper column mounts on the instrument panel structure release at a carefully controlled load, allowing the steering wheel to move forward. As the wheel moves forward, it crushes a bellows inside the column. Forward movement is damped by friction between the lower column and inside surface of the steering bushing attached to the upper column.

### FLAME RETARDANT MATERIALS

Seating fabric and urethane padding are flame retardant to minimize the possibility of an interior fire.

### CLUTCH-STARTER INTERLOCK

To prevent sudden, unexpected movement of the car when the engine is started, an interlock switch operated by the clutch pedal prevents the starter from running if the clutch is engaged.

## IMPACT RESISTANCE

### SIDE IMPACT PROTECTION

Tubular side door beams of ultra-high strength — 220,000 lb/in<sup>2</sup> (1500 MPa) — provide the required strength while reducing weight approximately 5.5 lb (2.5 kg) per door compared to the previous Talon.

## SECURITY SYSTEMS

### CENTRAL DOOR LOCKS

A central door lock system that integrates the outside key cylinders and the driver's door lock knob with the power lock system is standard on TSi AWD and optional on the other models. In addition, electronic logic provided by ETACS (Electronic Time and Alarm Control System) provides the ability to unlock only the driver's door or both doors using the key in the driver's door. System operation is described in the following table. Actions specific to the central locking system are shown in bold face type:

<u>Action</u>	<u>Using</u>	<u>Result</u>
Unlock	Key in driver's door	First action unlocks driver's door <b>Repeat action unlocks passenger's door</b>
	Key in passenger's door	<b>Unlocks both doors</b>
	Manual lock knob on either door	Unlocks affected door only
	Power lock switch on either door	Unlocks both doors
Lock	Key in either door	<b>Locks both doors</b>
	Manual lock button on driver's door	<b>Locks both doors</b>
	Manual lock button on passenger's door	Locks affected door only
	Power lock switch on either door	Locks both doors

Through ETACS, the central locking system also prevents the driver from locking the doors with the key in the ignition switch. Opening either door with the key in the ignition, automatically unlocks both doors. ETACS then prevents power from flowing to the door lock actuators until the key is removed.

See also ETACS under Body Systems in the Body section.

### **REMOTE KEYLESS ENTRY SYSTEM (LATE AVAILABILITY)**

An optional remote keyless entry system that locks or unlocks both doors will become available as a running change. It consists of a radio transmitter and receiver added to the central door locking system for greater convenience and security. The system has the following features:

- The transmitter is effective at a range of up to 33 ft (10 m) in any direction, because it uses radio waves to carry the control signal.
- The receiver responds only to coded signals from transmitters possessed by the owner. Two separate codes may be stored in memory so that two transmitters can be used with one car. The codes are stored in EEPROM (electrically erasable programmable read-only memory) chips in the receiver. The digitally coded transmitter signal contains 21 "bits" of unique information, allowing more than one million codes. The code is sent three times with each actuation of the transmitter to reduce the possibility that radio interference will prevent receipt of the signal. The receiver compares the incoming signals to the stored code and sends the requested unlock or lock signal to ETACS if any of them is correct. If a transmitter is lost, the receiver is easily reprogrammed to respond to a new one.
- The system includes a timer lock function to reduce the possibility of unauthorized entry if the unlock switch is pressed inadvertently. If a door is not opened within 30 seconds after the unlock switch is pressed, the system automatically relocks both doors.
- To confirm operation of the system, the interior courtesy lamps flash twice when the lock switch is pressed. When the unlock switch is pressed, the courtesy lamps are illuminated for 3 seconds.
- As a precaution against the use of randomly coded signals to gain unauthorized entry to the car, the receiver will inhibit system operation for 10 minutes if it receives 30 erroneous codes within one minute.

A spiral ring allows the compact transmitter to be attached to a key or key holder. The transmitter has two recessed push buttons, one for locking and the other for unlocking, and an LED indicator lamp.

Illumination of the indicator lamp verifies that a signal has been transmitted. If the lamp is not illuminated, the batteries must be replaced. Two lithium batteries inside the transmitter have a life expectancy of two years when the transmitter is operated 10 times per day. The two-piece transmitter case snaps apart for battery replacement.

### **VEHICLE ANTI-THEFT ALARM SYSTEM (LATE AVAILABILITY)**

**General** - An optional vehicle anti-theft alarm (VTA) system will become available as a running change. The VTA deters vandalism and non-professional theft, frequently lowering insurance premiums. It also supports calls for legislation to require theft alarm systems. The VTA protects the vehicle from theft by monitoring door ajar switches, hood and liftgate switches, the ignition circuit, power door lock and unlock circuits and a trunk lid lock sensor for unauthorized entry.

**Arming The System** - The VTA is pre-armed by turning the ignition off, and removing the key. Arming begins by locking the doors with the key or with the remote keyless entry transmitter. A SECURITY lamp in the instrument cluster is illuminated for 20 seconds during arming. When arming is complete, the lamp goes off. To assure a that the vehicle is secure, all doors must remain closed and locked and the ignition must remain "off" during arming. If a door is ajar, arming will not begin. Opening the hood and liftgate during arming will not affect the process.

**Triggering The Alarm** - Once armed, opening a door, the hood or the liftgate will trigger the alarm. Repeated attempts at such entry will re-trigger the alarm.

**Alarm Response** - When the alarm is triggered, the ignition system is disabled. In addition, the horn sounds intermittently and the headlights flash for up to three minutes. The alarm output can be terminated by unlocking a door or the liftgate with the key.

**Disarming The System** - The VTA is disarmed by unlocking either front door or the liftgate with the key or by pressing the Unlock button on the Remote Keyless Entry transmitter. If the alarm was triggered during the last armed period but is no longer providing an output, three horn pulses will occur, alerting the driver to this condition.

## ENVIRONMENTAL

### PROTECTING THE ATMOSPHERE

#### Exhaust Emission Controls

Exhaust emission standard applicable to the 1995 Talon are as follows:

Jurisdiction	Pollutant 1		
	CO	NOx	NMHC/NMOG
Federal	3.4	0.4	0.25
California	3.4	0.4	0.25
TLEV 2	3.4	0.4	0.125

1 Allowable levels are shown in grams per mile at 50,000 miles. NMHC and NMOG are new names for what was formerly called unburned hydrocarbons.

2 Transition Low Emission Vehicle

A larger, two-element, three-way catalytic converter is the primary means of meeting the lower emission limits for 1995. Exhaust gases fed to the converter are produced by combustion of air and fuel maintained in stoichiometric proportions by electronic controls that use a heated oxygen sensor in the exhaust manifold. Electrical heating causes the sensor to reach operating temperature, enabling accurate control of fuel-air ratio, more quickly than if heated by exhaust gases alone.

On the naturally aspirated engine, exhaust gas for EGR (exhaust gas recirculation) that minimizes NOx emissions produced during combustion is diverted through a passage off the #4 cylinder exhaust port to the EGR valve attached to the rear of the cylinder head. A steel tube delivers the metered exhaust flow to a thermally isolated connector at the inlet elbow of the intake manifold. On the turbocharged engine, the EGR valve is mounted on the intake manifold and directs flow from a passage in the cylinder head. EGR flow is electronically controlled by the PCM.

Both engines have shallow piston crowns with high-mounted top rings reduce the volume of unburned fuel vapor in the cylinders. The combustion chamber of the turbocharger engine has also been modified to reduce the depth of crevices for lower emissions.

Manual transmission models with the naturally aspirated engine also include a secondary air aspirator system that adds air to the exhaust flow to reduce the level of unburned fuel vapor (NMHC/NMOG) in the exhaust during warm-up. the aspirator is controlled by a solenoid operated by the PCM.

A charcoal-filled canister with a liquid trap to prevent the charcoal from deteriorating collects vapor from the fuel tank to avoid releasing it to the atmosphere. ESI has a duty-cycle solenoid valve controlled by the PCM that allows vapor to flow from the charcoal canister to the engine in proportion to engine mass air flow. A two-way purge control system is used with the turbocharged engine.

#### Emission Control Diagnostics

Significant enhancements to former on-board diagnostic (OBD) systems are on ESI with automatic transaxle. All other models, a major upgrade in diagnostics called OBD II is used. OBD II is a technology-forcing requirement intended to ensure that emission control systems are functioning effectively for at least 100,000 miles. OBD II requires monitors for emission control systems to determine misfire, catalyst efficiency, fuel injection system operation, EGR flow, oxygen sensor heater operation and sensor response, secondary air (aspirator) operation, and evaporative system operation. In addition, 50 sensors, switches and actuators are checked for rationality of action in addition to determining their presence and operation. Malfunctions in any of these areas turns on the CHECK ENGINE indicator light and records a diagnostic test code in the PCM/ECM memory that can be accessed via a scan tool. OBD II also requires a

common data link connector for diagnosis of all on-board electronic systems and common vehicle diagnostic outputs for all required functions on all vehicles regardless of manufacturer. A "generic" scan tool must be able to read the required outputs. To provide OBD II capabilities is a "downstream" oxygen sensor which monitors catalyst efficiency is added at the catalytic converter outlet. Like the upstream sensor it is electrically heated. The turbocharged engine also has a manifold differential pressure sensor (MDP) that is used by the ECM to detect a malfunction of the EGR system. Other new functions are provided through additional diagnostic software.

## **MATERIAL RECYCLING**

The following recycling processes are associated with Talon manufacturing:

- All plastic parts have material identification marks to aid recycling.
- Use of recyclable parts has been maximized.
- Sound insulating pads are recyclable.

## **HAZARDOUS MATERIAL REDUCTION**

The following manufacturing processes and material applications contribute to hazardous material reduction:

- Urethane foam used in seat cushions and backs is formed by a CFC-free process.
- The air conditioning system uses environment-friendly R-134A refrigerant which contains no ozone layer-depleting chlorine.

## SERVICEABILITY & MAINTENANCE

### SERVICEABILITY DESIGN OBJECTIVES

An analysis of 55 service operations shows the new Talon to have retained the same excellent lever of serviceability as the previous model in spite of reduced engine compartment room due to the implementation of multi-link suspension systems.

### CENTRAL DATA LINK CONNECTOR

All on-board electronic system diagnostics are accessed by a scan tool through the central data link connector under the instrument panel. All switch inputs to ETACS are may also be checked with the scan tool. This connector has the same configuration and cavity selections as those used by other manufacturers, simplifying scan tool hook-up, meeting California Air Resources Board OBD II requirements and anticipating a similar federal requirement scheduled for 1996.

### ON-BOARD DIAGNOSTICS

On-board diagnostics are provided by the PCM/ECM, the Transmission Control Module, the anti-lock brake system, the auto-cruise module, the air conditioning automatic compressor control module, the remote keyless entry module, the ETACS module, the sunroof electronic module and the supplemental passive restraint system (air bags) module. In the event of a malfunction, all of these systems all retain diagnostic trouble codes in memory until they can evaluated and erased with a scan tool.

### SERVICEABILITY FEATURES

#### ENGINE SYSTEMS

**Air Cleaner** - Compared to the previous Talon, the air cleaner housing and air flow sensor connector are redesigned to allow air filter replacement by releasing four clamps and disconnecting the air flow sensor.

#### DRIVETRAIN

**Modular Clutch** - The naturally aspirated engine has a modular clutch in which the cover is riveted, rather than bolted, to the flywheel. It is removed and replaced the as a unit. The disc on a replacement clutch is centered on the flywheel and clamped by the pressure plate — a pilot tool is not needed to install it. The modular clutch is attached to the crankshaft via the same flex plate used by the automatic transaxle.

#### BODY SYSTEMS

**Exterior Lighting** - Headlights units have integral aiming systems, permitting adjustment without using external aiming equipment. Vertical adjustment is made by turning the adjusting screw until the bubble of the adjusting gauge is between the designated marks. For horizontal aiming, the adjusting screw is turned until adjustment marks are aligned.

Taillight bulbs are replaced from inside the cargo area. Removable covers in the cargo area trim panels provide access without using any tools.

**Windshield Wiper/Washer Systems** - The modular wiper system makes removal for repair easy.

**Wiring Systems** - The fuse block is part of the wiring junction block assembly. It is mounted on the dash panel to the left of the steering column. A brief description of the circuit supplied by each color-coded fuse, its ampere rating and location is shown on the fuse block cover. Spare 10, 15, 20 and 30 ampere fuses are stored in the cover. Also mounted on the junction block are relays for the blower motor and rear window defroster.

Turbocharged and naturally aspirated engine models have unique underhood power distribution centers (PDC). Fuses and relays all plug in for easy replacement. Each houses cartridge fuses to protect major

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power distribution circuits, blade-type for circuits that are supplied directly from the PDC rather than through the ignition switch, and relays for high-volume underhood power equipment. The central location of relays makes them easy to locate for service. Two IOD (ignition-off draw) fuses are mounted in a carrier assembly for easy removal when necessary to prevent electrical accessories from draining the battery during long periods of inactivity. The function and circuit number of each unit is shown on the outside of the PDC cover.

### **Body INTERIOR**

**Instrument Cluster** - The instrument cluster has plug-in connectors that make removal and replacement easy.

### **Chassis**

**Brake Systems** - Brake discs are stud mounted to permit removal for inspection or repair without disturbing the hubs or hub bearings. Brake pads have mechanical wear indicators that produce a scraping noise when minimum lining thickness is reached. Separating the rear disc brake and parking brake functions simplifies brake pad replacement. On ABS-equipped cars, the speed sensor replacement is simplified by eliminating the sensor-to-rotor gap adjustment.

**Wheel Hubs and Bearings** - Front and rear hubs have unit bearings are easier to service than the former multi-piece bearing and seal system. The unit is pressed onto the front hub and bolted to the knuckle for easier replacement in service compared to the previous bearing that required removal of the knuckle.

**Steering and Suspension** - An all-new steering gear and its mounting are designed to allow gear removal without disturbing the stabilizer bar, AWD transfer case or exhaust system.

**Fuel Supply System** - The fuel filter is located in the engine compartment under the battery tray for easy replacement. The fuel pump and fuel gauge sending unit can be removed for service through an access hole beneath the rear seat cushion.

## **MAINTENANCE FEATURES**

All areas requiring maintenance during the normal life of the car e.g. oil filter, oil filler cap, engine oil dip stick, spark plugs, brake pads, etc. are readily accessible. A label attached to the underside of the hood identifies the location of each service check point. In addition, some these check points have added features to make checking easy as described below:

- Brake and clutch master cylinders have translucent reservoirs are translucent to enable fluid level inspection without removing their covers.
- The clutch reservoir is remotely mounted to improve its accessibility.
- Both covers are white for easy identification.
- Engine and transmission dip sticks are easier to use than on the previous Talon. They have plastic handles with molded nomenclature for easy identification.
- The cooling system refill ("radiator") cap has a yellow label .
- The power steering reservoir filler has black letters on a white cap. It also includes a dip stick.
- A power distribution center adjacent to the battery has all fuses and relays identified by a label on the cover.





